# Appendix A

# I/I Pilot Project Candidate Nomination Forms

## Description:

This appendix contains the nomination forms that were prepared by the respective local agencies and used in the pilot project selection workshops.

## Reference Chapter:

Chapter 2 – I/I Pilot Project Selection

# I/I W orkshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** **Blanket Contract Manhole Rehabilitation – (Consolidated Effort of CCR002, NUD038 & VAL019)**

**Local Agency:** **Joint Project (Coal Creek, Northshore, Val Vue)** ■ **Project** ☐ **Basin #:** **CCR002, NUD038, VAL019**

**Contact Person:** **Barry Scott** **Phone #:** **206-625-1053**

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ■ **North** ■ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
■ Public ☐ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| * | * | * |

*** = see individual component Agency sheets**

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | * |
| Meets Time Frames for the I/I Program | ✔ | * |
| Geographic Representation | ✔ | * |
| "Do No Harm" + Geologic Conditions OK | ✔ | * |
| System Age | ✔ | * |
| Environmental Benefits | ✔ | * |
| Addresses Private Sewer Issues | | * |
| Provides Regional Impact | ✔ | * |
| Model for Future Projects | ✔ | * |
| Representative of Typical I/I Problems Region-wide | ✔ | * |

| | | |
|---|---|---|
| Wild Card | ✔ | * |

*** = see individual component Agency sheets**

## Project Title: Blanket Contract Manhole Rehabilitation

## Key Facts & Information:

Proposed Pilot is a cooperative joint effort by the Coal Creek Utility District, the Northshore Utility District and the Val Vue Sewer District. Pilot would allow for the trial of multiple types of rehabilitation techniques in a variety of field conditions. The Pilot will provide a good geographic representation for the total Service Area with one basin located in the North, East and South Regions of the County.

# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title: CCR002 (Consolidated with NUD038 & VAL019)**

**Local Agency: Coal Creek Utility Dist.** ☐ **Project** ☐ **Basin #: CCR002**

**Contact Person: Tom Peadon** **Phone #: 425-235-9200**

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ☐ Both ■ Unknown
■ Public ☐ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 4,202 gpad** | **7.9 (11/13/01 storm)** | **Peak: 22.5 gplfd** |

**Selection Criteria:**

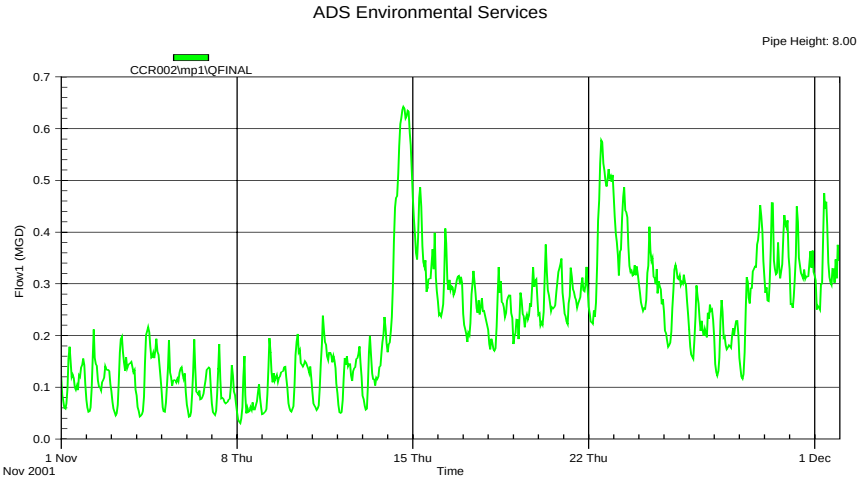
| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | MH repair |
| Meets Time Frames for the I/I Program | ✔ | |
| Geographic Representation | ✔ | East |
| "Do No Harm" + Geologic Conditions OK | ✔ | Gravel lenses, fairly flat terrain. Known artesian springs / seeps nearby. |
| System Age | ✔ | 1967-69 (30+ years) |
| Environmental Benefits | ✔ | Stream enhancement, ESA on Coal Creek. Wetlands NA, all Newcastle. |
| Addresses Private Sewer Issues | | |
| Provides Regional Impact | | |
| Model for Future Projects | | |
| Representative of Typical I/I Problems Region-wide | | |
| Wild Card | | |

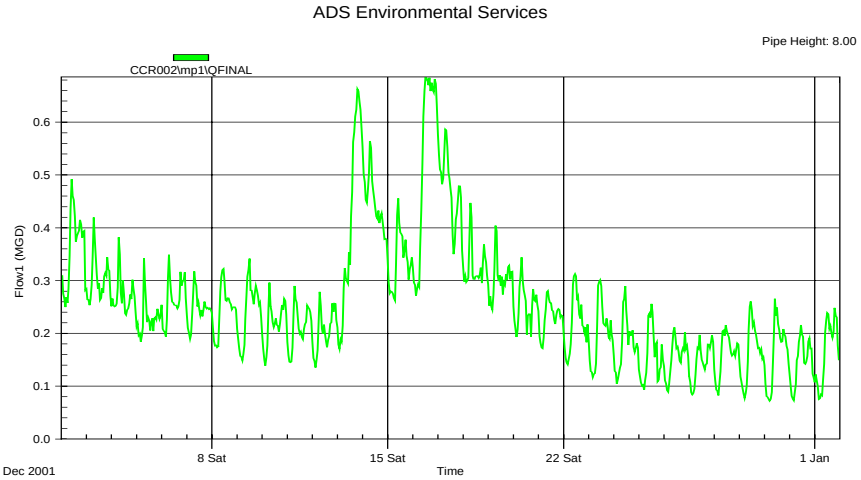
## Project Title: CCR002

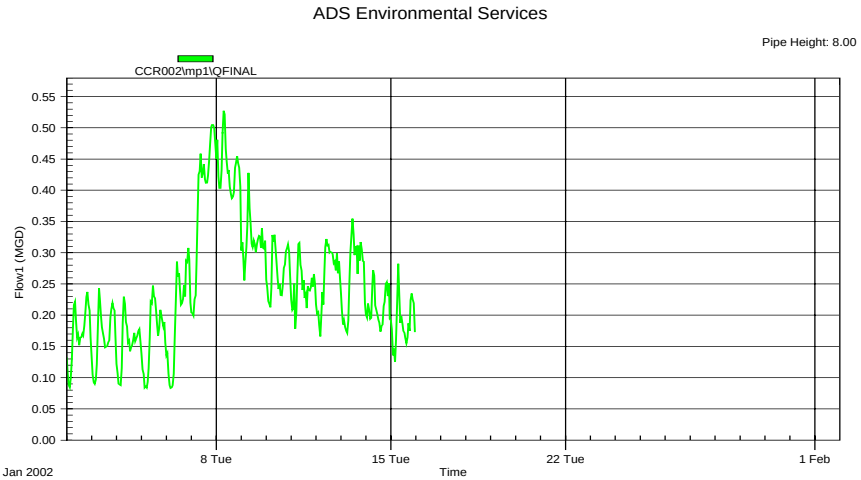
## Key Facts & Information:

Infiltration through seams and pipe penetrations at large number of manholes, clear water flowing, erosion in manhole channels. 6”/8” all AC (rubber gasketed) bad manholes. Shallower sewers than 007. Approx. 40-50 MH’s are found to be leaking, additional SSES work will determine the total number.

# Coal Creek Utility District
# CCR002



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** NUD038 (Consolidated with CCR002 & VAL019)

**Local Agency:** Northshore Utility Dist. ☐ **Project** ☐ **Basin #:** NUD038

**Contact Person:** Matt Everett **Phone #:** 425-398-4428

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
■ Public ☐ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 6,025 gpad** | **9.0 (12/15/01 storm)** | **Peak: 27.0 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Manhole grouting/sealing/lining using various materials and techniques |
| Meets Time Frames for the I/I Program | ✔ | No anticipated problems. |
| Geographic Representation | ✔ | North-end (King County). |
| "Do No Harm" + Geologic Conditions OK | ✔ | No anticipated problems. |
| System Age | ✔ | Post 1961 System – About 75% newer D.I. & P.V.C. pipe and 25% concrete & A.C. pipe. |
| Environmental Benefits | ✔ | Less sewer flow to north end of Lake Washington – reduce sewer overflow events. |
| Addresses Private Sewer Issues | | Primarily public. |
| Provides Regional Impact | ✔ | Increases capacity in regional conveyance and treatment systems. Reduces overflows into Lake Washington. |
| Model for Future Projects | ✔ | Good project to learn how to reduce I/I in manholes. All sewer agencies can benefit. |
| Representative of Typical I/I Problems Region-wide | ✔ | All sewer agencies have leaking manholes. |

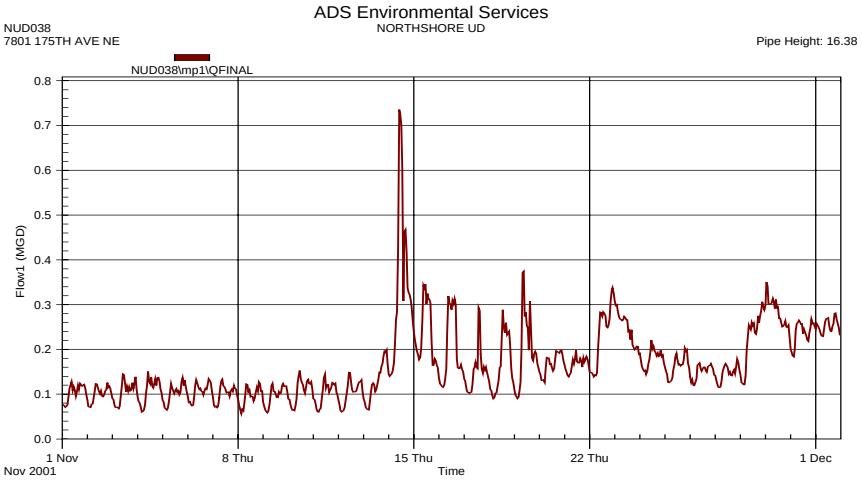
| | | |
|---|---|---|
| Wild Card | ✔ | Northshore is willing to consolidate efforts with Coal Creek and Val Vue Districts to maximize benefits for the dollars spent. |

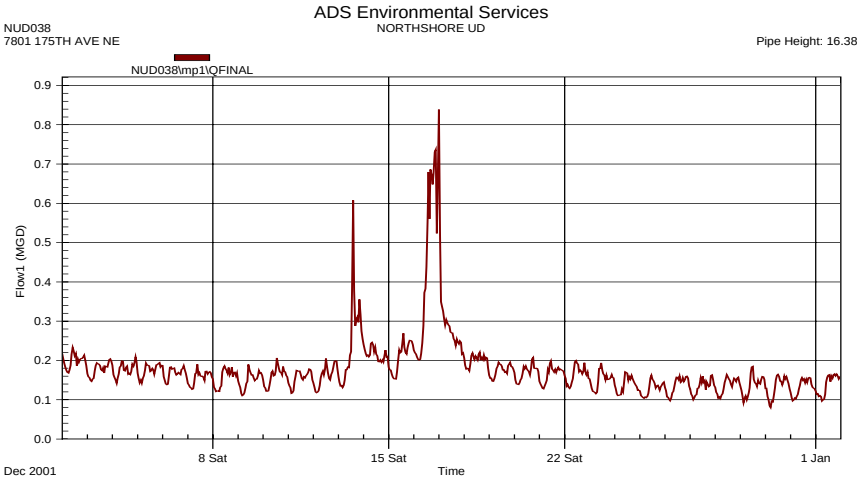
## Project Title: NUD038

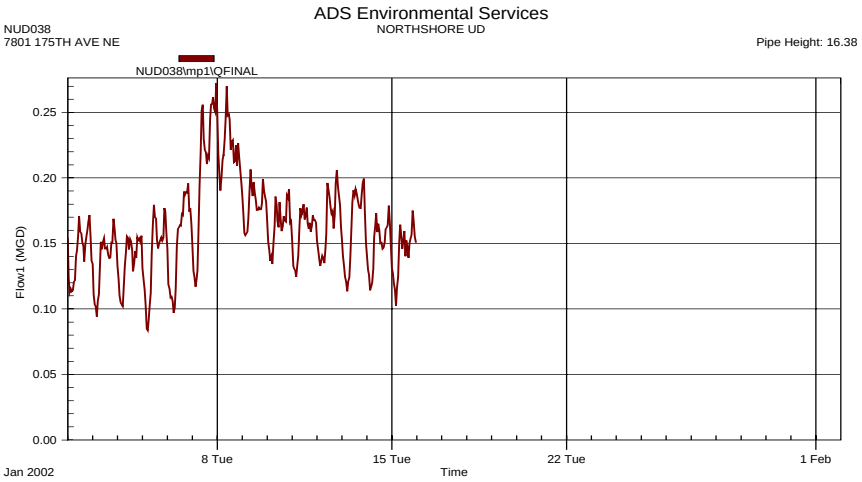
## Key Facts & Information:

- Upstream sewer basin. Easily monitored; No subtraction errors.
- Total I/I as high as 6,025 gpad.
- 10 (3-day) storm events had cumulative I/I volume of 4,808,000 gallons.
- About 75% of the sewer basin is comprised of newer D.I. and P.V.C. sewer pipes.
- The District has T.V.'d most of the area and found no notable problems in the sewer mainlines.
- In March, 2002 District staff found 33 out of 145 manholes obviously leaking. This was during a non-rain event, but higher than average water table. Many manholes in the basin are installed in wetland areas. A more thorough investigation will find additional manholes requiring rehabilitation.
- SSES work can be completed quickly – concentrating solely on the condition of manholes.
- Consolidating efforts with two other sewer agencies will allow us the ability to use a variety of manhole rehabilitation technologies and enhance learning.
- Consolidating efforts with two other sewer agencies will provide maximum I&I reduction for minimum dollars. "The most bang for the buck."

# Northshore Utility District
# NUD038



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title: VAL019 (Consolidated with CCR002 & NUD038)**

**Local Agency: Val Vue Sewer District** **Project/Basin #: VAL019**

**Contact Person: Dana Dick** **Phone #: 206-242-3236**

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
■ Public ☐ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 4,307 gpad** | **10.4 (11/13/01 storm)** | **Peak: 22.7 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Manhole grouting/sealing/lining using various materials and techniques |
| Meets Time Frames for the I/I Program | ✔ | Right-of-Way Use Permit |
| Geographic Representation | ✔ | South 3 |
| "Do No Harm" + Geologic Conditions OK | ✔ | No geographic harm. All work will be done in right-of-ways or on previously established easements. |
| System Age | ✔ | Post 1961 System – 27 yrs. Mainlines are all PVC pipe. Manholes were constructed in 1973 and some of the most serious contributors have been grouted but need to be readdressed due to grout failures. Alternative grout/sealing/lining materials are needed to address high fluctuations in the groundwater table, which damage typical grout. |
| Environmental Benefits | ✔ | Increase capacity and reduce overflows, ESA benefits, and minimize public impacts by trenchless rehabilitation, when appropriate. |
| Addresses Private Sewer Issues | | Public. |

| | | |
|---|---|---|
| Provides Regional Impact | ✔ | Increase capacity in regional system by reducing flows to go to King County-Metro |
| Model for Future Projects | ✔ | Results are expected to be significant and will be closely monitored and provided for modeling |
| Representative of Typical I/I Problems Region-wide | ✔ | Very representative, most agencies have some leaking manholes. |
| Wild Card | ✔ | This sub basin flows through a single pump station. Comparing station pump times to rainfall shows a direct correlation. During rain events the pumps run 24/7. There is also a direct correlation between seasonal ground water and pump run times. |

## Project Title: McMicken Basin Manhole Rehabilitation

## Key Facts & Information:

**I/I Confirmed:**

- Upstream basin, easily monitored.
- Total I/I as high as 4,307 gpad
- 10 storm cumulative volume = 1,598,326 gallons.
- Flow monitoring by ADS indicates a peaking factor of 10.4.
- Val Vue's flow monitoring confirms this peaking factor.
- Pump Station run times confirm I/I.

**Source of I/I confirmed:**

- PVC mainlines have been inspected and are not leaking.
- Laterals do not show signs of high I/I.
- In the past when the manholes have been grouted there has been an immediate reduction in I/I.
- Recent evaluation found 30 out of 75 manholes leaking.

**SSES can be quickly completed:**

- Most manholes connected to this basin have been recently evaluated (March of 2002). Location of I/I inside each evaluated manhole is known.

**Variety of Technologies Available:**

- Grouting (different grout materials on the market)
- Lining (different lining materials on the market)
- Complete rebuild.

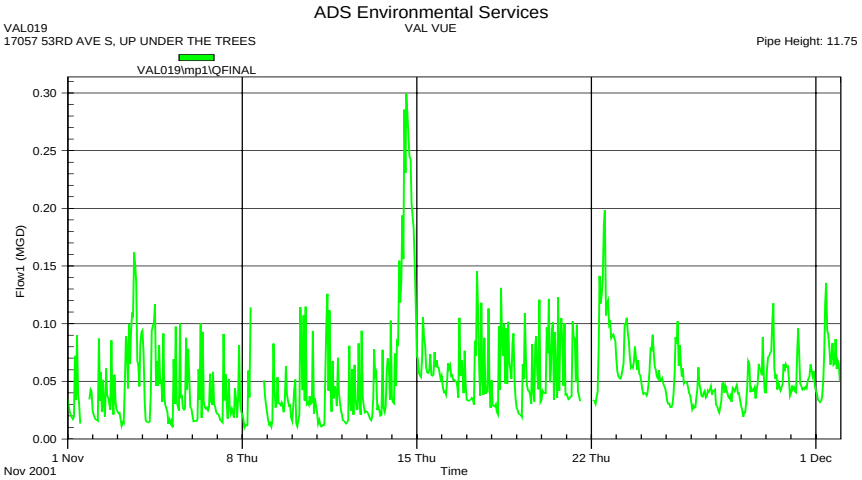
**Consolidated project:**

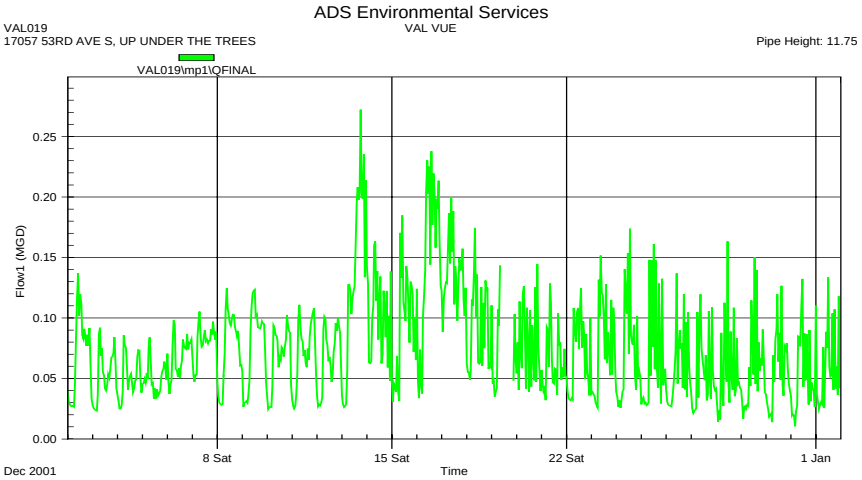
- Scalable Size: Val Vue/Coal Creek/Northshore = 120-240 manholes.
- Agencies involved have already held coordinating meetings.

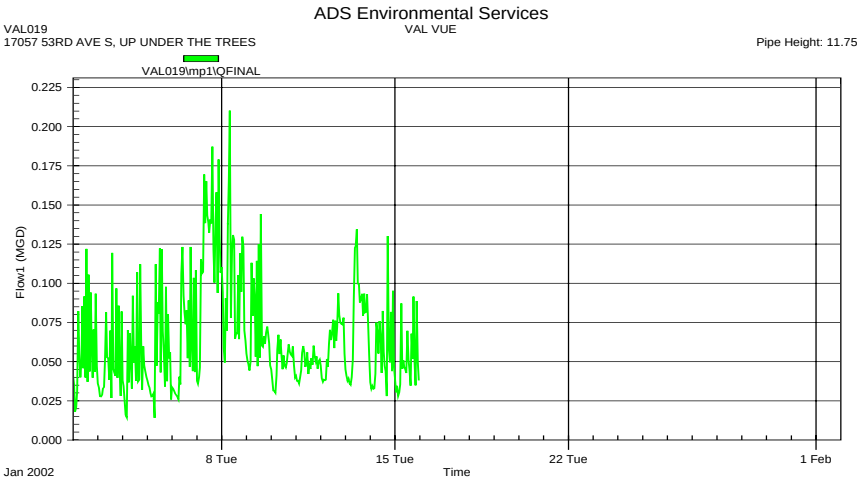
**Possible volume discount for other agencies:**

- Extended quantity based price from contractors can be made available to any agency planning manhole rehab projects.

# Val Vue Sewer District
# VAL019



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** Auburn Academy

**Local Agency:** City of Auburn ☐ **Project** ☐ **Basin #:** ABN002

**Contact Person:** Jeff Roscoe **Phone #:** 253-931-4008

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 10,030 gpad** | **5.3 (11/4/01 storm)** | **Peak: 58.9 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Whatever will get the job done |
| Meets Time Frames for the I/I Program | ✔ | No known issues exist that would present a problem. |
| Geographic Representation | ✔ | Flat terrain, residential area with rocky soil. Located upon a plateau. |
| "Do No Harm" + Geologic Conditions OK | ✔ | No impact to sensitive areas. |
| System Age | ✔ | 1965 – 35 years approximately (1966) |
| Environmental Benefits | ✔ | MIT system is shut off if this line surcharges. |
| Addresses Private Sewer Issues | ✔ | Private systems contribute to the problem. |
| Provides Regional Impact | ✔ | Main line has capacity concerns. Correcting the line will allow continued economic growth for Auburn and the MIT. |
| Model for Future Projects | ✔ | Auburn sees this as a typical situation with residential and public concerns. |
| Representative of Typical I/I Problems Region-wide | ✔ | Concrete main line and side sewers that need to be replaced. Seems to be a typical situation. |

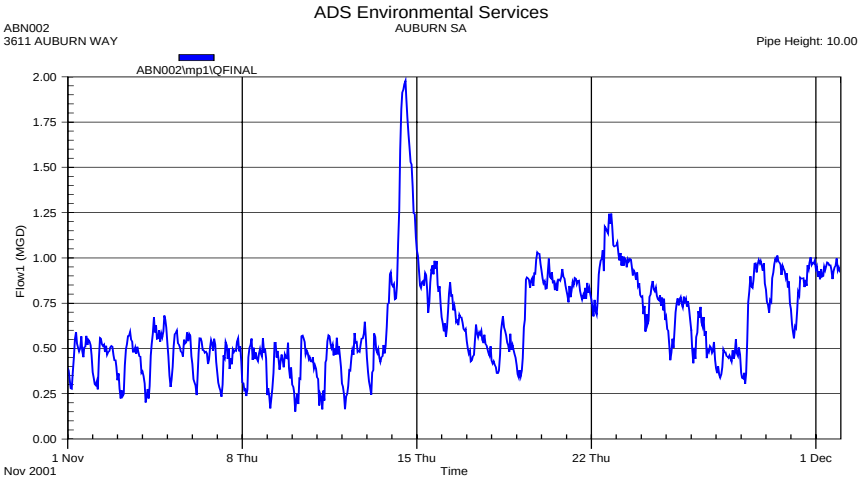
| | | |
|---|---|---|
| Wild Card | | Auburn is willing to participate financially. The MIT may also be willing to participate. |

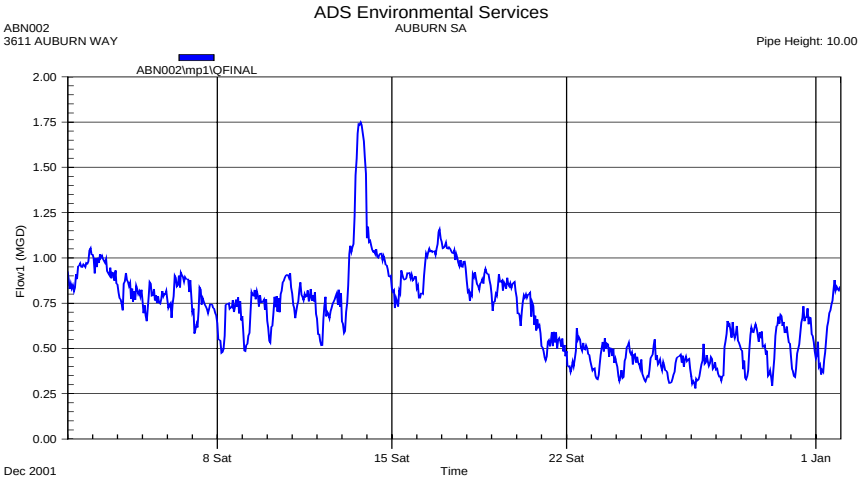
## Project Title: Auburn Academy

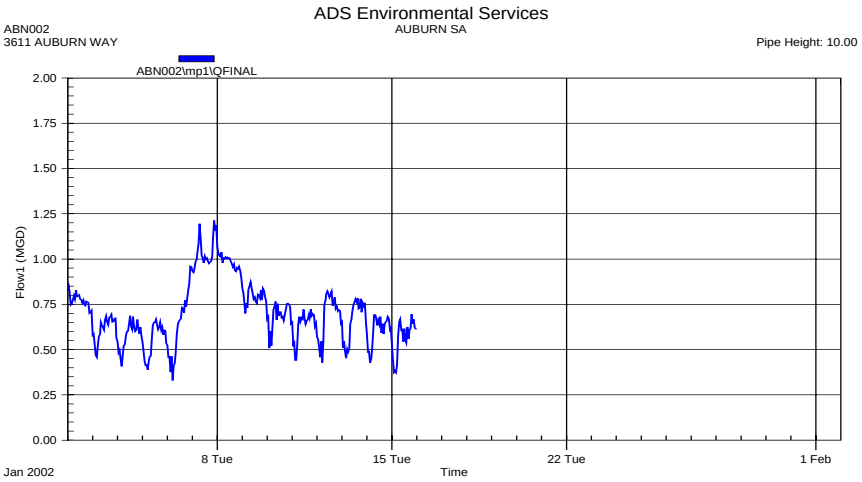
## Key Facts & Information:

- Line has surcharged in the past during rain events. Auburn has an agreement with the Muckleshoot Indian Tribe that shuts off the flow from their pump stations when Auburn's system becomes surcharged. This can create a sewage spill at the Tribe's sewage pump station, resulting in a health problem. The MIT is not the likely source of the I/I problem, just a component of this equation.
- Smoke test information and some improvements were done in 1998-99. The system is still showing signs of excessive flows.
- City has a desire to replace a portion of the main trunk line with larger pipe in the future. The City improvement will not address side sewers and a large portion of public main line that runs behind the Auburn Adventist Academy (private high school). I see this as an ideal opportunity to participate with King County for the complete removal of I/I from this sewer basin.

# City of Auburn
# ABN002



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** Fairweather Basin #1

**Local Agency:** City of Bellevue ☐ **Project** ☐ **Basin #:** BEL077

**Contact Person:** Randy Thompson **Phone #:** 425-452-6800

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 7,342 gpad** | **9.4 (11/13/01 storm)** | **Peak: 46.0 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Potential for joint repair, pipe bursting, slip lining, insituform, etc. |
| Meets Time Frames for the I/I Program | ✔ | Basin is in the City of Medina. Bellevue has a good working relationship with Medina. |
| Geographic Representation | ✔ | East |
| "Do No Harm" + Geologic Conditions OK | ✔ | No known issues |
| System Age | ✔ | Pre 1961 System – 40+ years. Almost all 8" concrete pipe installed in 1960. |
| Environmental Benefits | ✔ | Will reduce the volume and frequency of storm related local pump station overflows to Lake Washington via a small creek. |
| Addresses Private Sewer Issues | ✔ | Publicly owned side sewers in the right-of-way – no unusual circumstances associated with side sewer rehabilitation on private property. |
| Provides Regional Impact | ✔ | Flows to King County's Medina PS, Eastside Interceptor, and Renton Treatment Plant. |
| Model for Future Projects | ✔ | Typical of older construction during a period of "construction boom". Common pipe material |

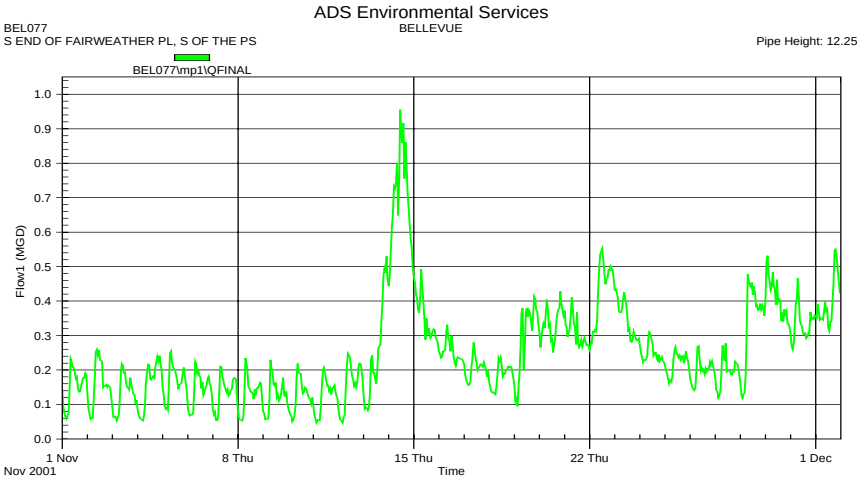
| | | |
|---|---|---|
| | | (concrete) that frequently has high I/I. |
| Representative of Typical I/I Problems Region-wide | ✔ | I/I flow pattern is typical of many locations in the region. I/I flow volume and peaking factor are high but also relatively common (not among the few worst I/I problem areas in the region). |
| Wild Card | | |

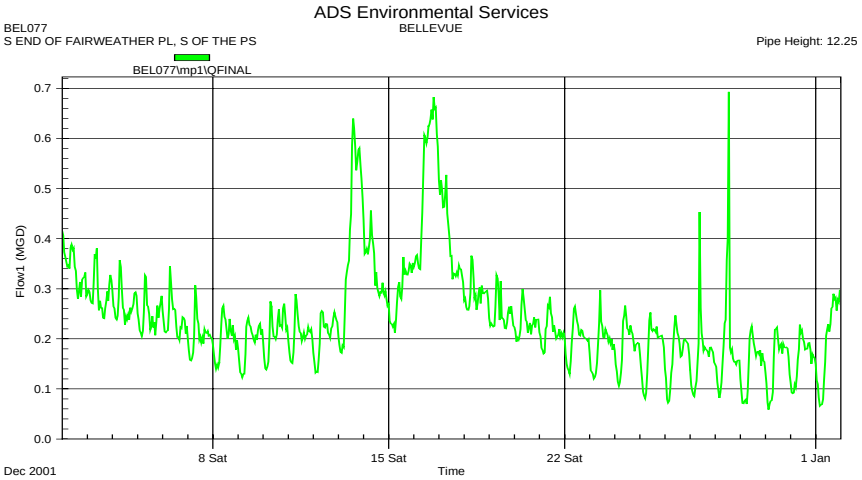
## Project Title: Fairweather Basin #1

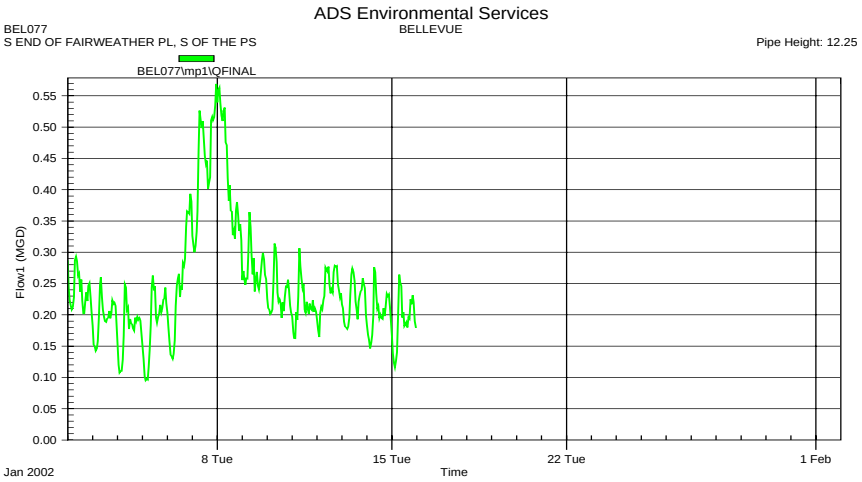
## Key Facts & Information:

- City flow monitoring conducted in 1997 at four locations within this mini basin indicates the problem is uniform & widespread.
- This mini-basin has very uniform pipe material and installation date.
- Approximately 70% of these pipes have been video inspected with pipe defects and observations well documented in a computer database.
- The Area is tributary to Bellevue's Fairweather P.S. but does not include any areas along the lakeshore.
- Fairweather PS records show rapid response to storm events.
- Exhibits some evidence of infiltration.
- Reduced I/I will reduce pumping costs for both Bellevue and King County pump stations.

# City of Bellevue
# BEL077



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title: BLA001**

**Local Agency: City of Black Diamond** **Project/Basin #: BLA001**

**Contact Person: Jason Paulsen** **Phone #: 360-886-2560**

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 3,311 gpad** | **3.8 (11/13/01 storm)** | **Peak: 17.7 gplfd** |

**Selection Criteria:**

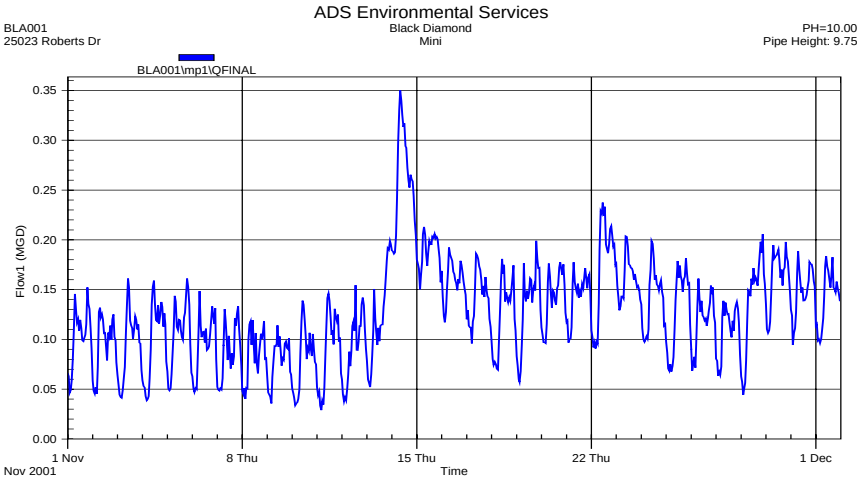
| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | |
| Meets Time Frames for the I/I Program | ✔ | |
| Geographic Representation | ✔ | |
| "Do No Harm" + Geologic Conditions OK | ✔ | |
| System Age | ✔ | Before 1980 |
| Environmental Benefits | | |
| Addresses Private Sewer Issues | | |
| Provides Regional Impact | ✔ | |
| Model for Future Projects | ✔ | |
| Representative of Typical I/I Problems Region-wide | ✔ | |
| Wild Card | | |

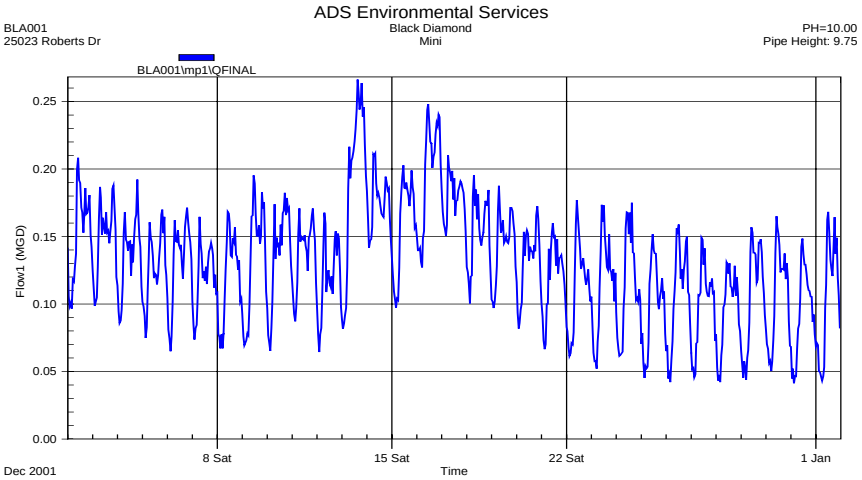
## Project Title: BLA001

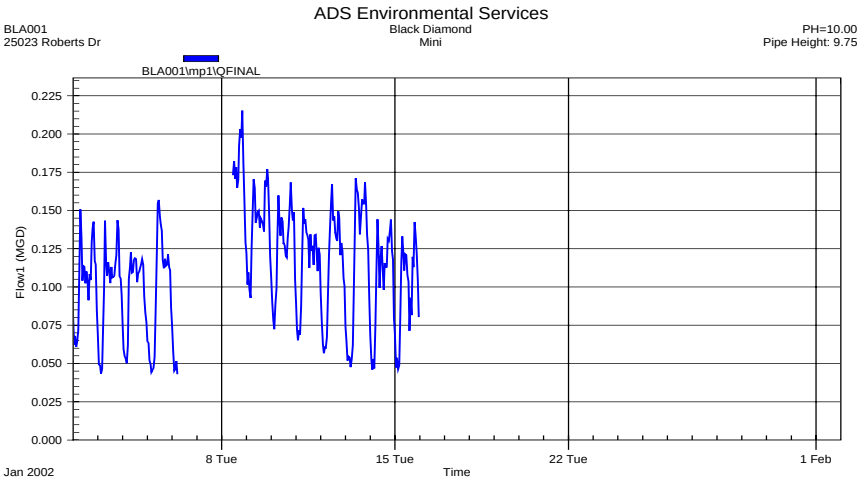
## Key Facts & Information:

Pilot project provides an opportunity to determine system deficiencies that were constructed with very little oversight during original construction.

# City of Black Diamond
# BLA001



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** BOT004

**Local Agency:** City of Bothell ☐ **Project** ☐ **Basin #:** BOT004

**Contact Person:** Mac McDonald **Phone #:** 425-488-0118

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ☐ Both ■ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 5,938 gpad** | **8.3 (11/21/01 storm)** | **Peak: 31.5 gplfd** |

**Selection Criteria:**

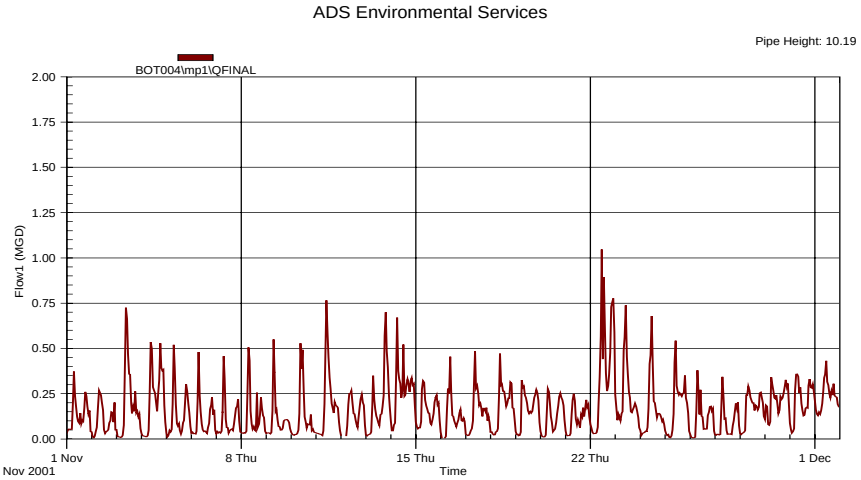
| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Good candidate for use of opoen trenc |
| Meets Time Frames for the I/I Program | | May need to coordinate with other utilities to improve water services to the area. |
| Geographic Representation | ✔ | North |
| "Do No Harm" + Geologic Conditions OK | ✔ | |
| System Age | ✔ | Primarily post 1970 |
| Environmental Benefits | ✔ | Basin flows into overloaded Kenmore pump station. |
| Addresses Private Sewer Issues | ✔ | |
| Provides Regional Impact | ✔ | |
| Model for Future Projects | ✔ | Opportunity for participation in costs with Water and Storm utilities. |
| Representative of Typical I/I Problems Region-wide | ✔ | |
| Wild Card | | |

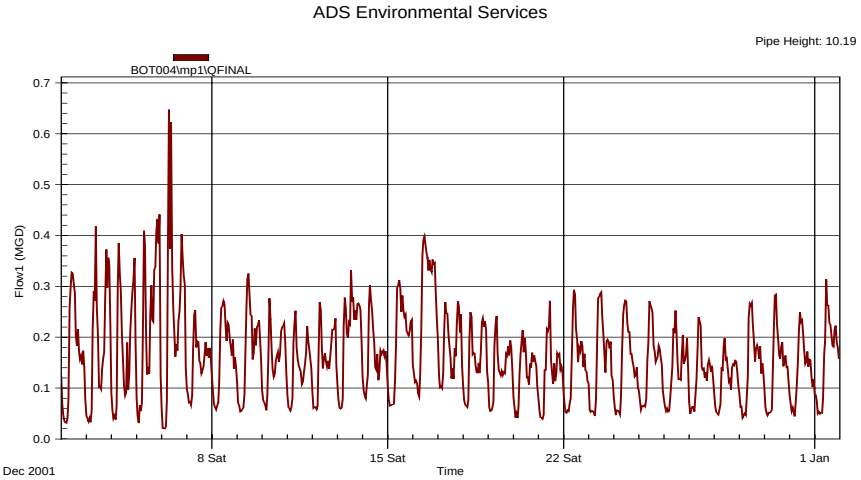
## Project Title: BOT004

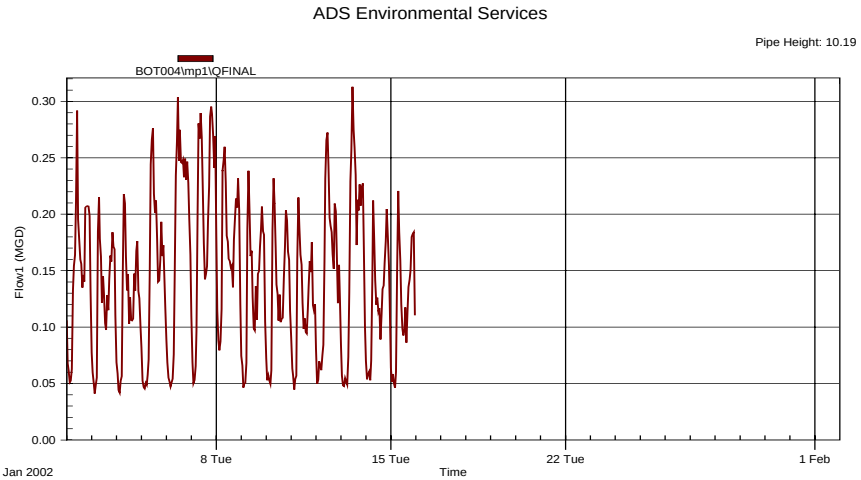
## Key Facts & Information:

Based on the November readings, it appears that significant inflow – in the neighborhood of .6 MGD – during a storm event occurs. We believe this inflow is primarily in the Woodcrest Mobile Home park, where several problems with combined and confusing storm lines have been identified as a result of 2 separate developers installing separate systems. There is a timing issue in resolution of some water service conflicts, as water services in the area are spaghetti lines, and determination of responsibility for replacement and "rationalization" of those lines will need to be undertaken. These issues can be resolved in a timely manner if no serious objection from homeowners is encountered. Project costs may be shared to some extent with the water and storm utilities, where appropriate, which could extend the scope of the overall project.

# City of Bothell
# BOT004



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** BOT011

**Local Agency:** City of Bothell ☐ **Project** ☐ **Basin #:** BOT011

**Contact Person:** Mac McDonald **Phone #:** 425-488-0118

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ☐ Both ■ Unknown
☐ Public ■ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 2,947 gpad** | **4.1 (12/15/01 storm)** | **Peak: 16.3 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Excellent candidate for pipe-bursting – many streets have been recently resurfaced |
| Meets Time Frames for the I/I Program | ✔ | |
| Geographic Representation | ✔ | |
| "Do No Harm" + Geologic Conditions OK | ✔ | |
| System Age | ✔ | Varies from 70's to early 50's – some of the oldest pipe in the system. |
| Environmental Benefits | ✔ | System drains to overloaded Kenmore pump station. |
| Addresses Private Sewer Issues | ✔ | Suspect many roof drains tied into older sanitary sewer lines – older sections of storm may also. |
| Provides Regional Impact | ✔ | |
| Model for Future Projects | ✔ | Opportunity to complete a project in a "core" area, with attendant traffic & congestion. |
| Representative of Typical I/I Problems Region-wide | ✔ | Older neighborhood with mixed development – potential for some roof drain/combined systems |

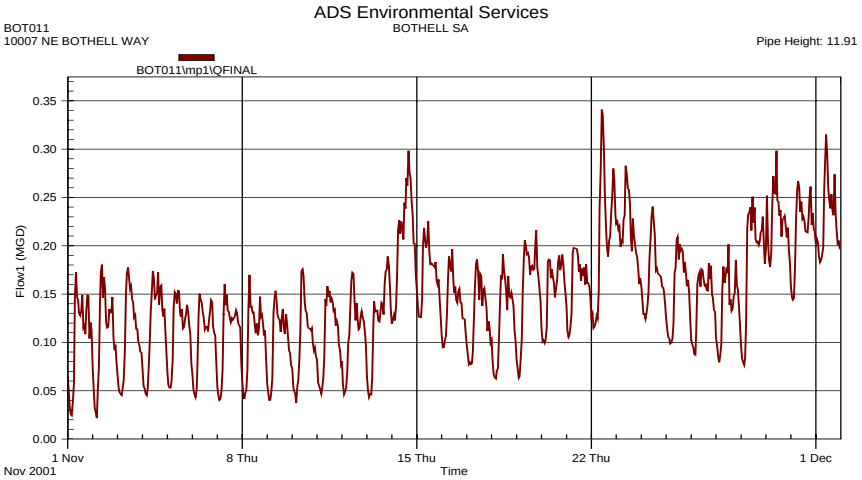
| | | |
|---|---|---|
| Wild Card | | |

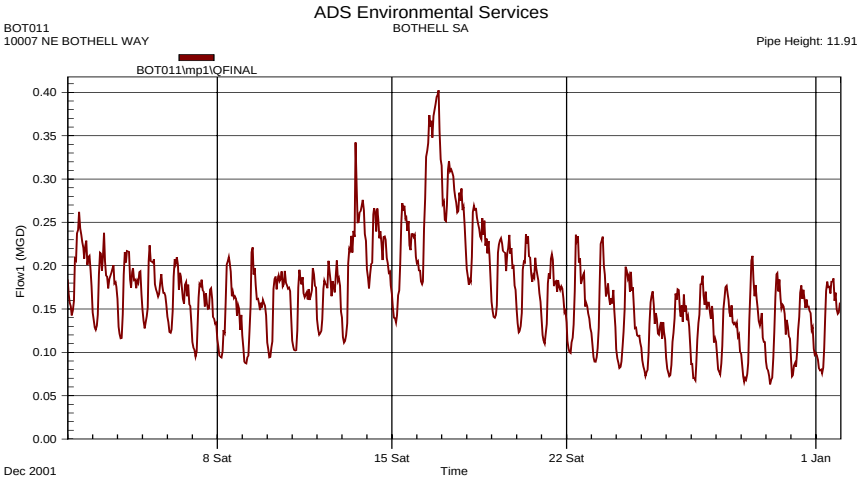
## Project Title: BOT011

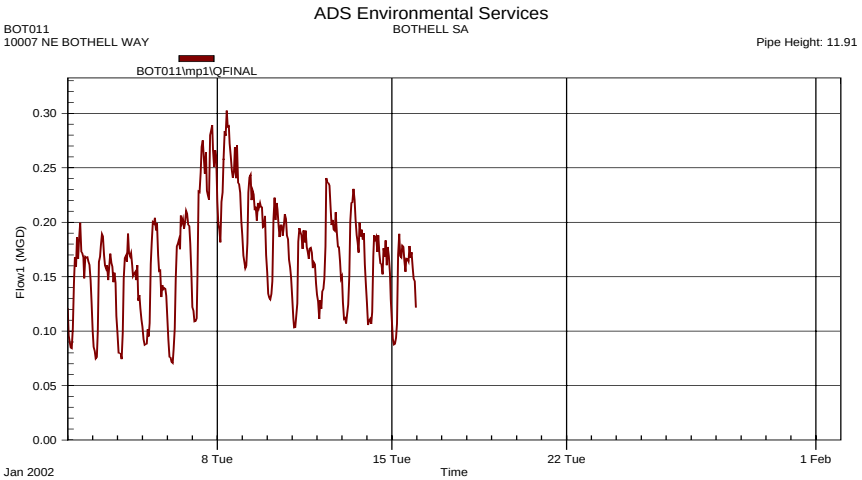
## Key Facts & Information:

This project includes considerable areas of older (pre 1950) development, where loose enforcement and customary usage had homeowners connecting roof and footing drains to any convenient discharge. Further testing may indicate a relatively small area where the majority of the inflow is concentrated, consisting of the area south of 192nd. Due to recent resurfacing of many of these streets, pipe bursting or another trenchless technology would be the preferred method of mitigation.

# City of Bothell
# BOT011



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** BRR004-Dundee

**Local Agency:** City of Brier ☐ **Project** ☐ **Basin #:** BRR004

**Contact Person:** Dick Russell **Phone #:** 425-775-5440

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 6,338 gpad** | **11.2 (12/12/01 storm)** | **Peak: 57.3 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Trenchless in pipe rehab. Manholes: Raise lids & frames, interior lining |
| Meets Time Frames for the I/I Program | ✔ | Meets 1 yr time frame |
| Geographic Representation | ✔ | North |
| "Do No Harm" + Geologic Conditions OK | ✔ | No harm |
| System Age | ✔ | Post 1961 System – Concrete pipe in '67 (2/3 area); PVC pipe in '96 (1/3 area) |
| Environmental Benefits | ✔ | Lyon Creek – High water |
| Addresses Private Sewer Issues | ✔ | Get side sewer easements |
| Provides Regional Impact | ✔ | Will reduce water volumes 1100% from base flow |
| Model for Future Projects | ✔ | High water table – will provide measurable reduction of I/I |
| Representative of Typical I/I Problems Region-wide | ✔ | Older concrete pipe – 1967 |
| Wild Card | ✔ | Can complete TV of system in 60 days – no flow |

| | | |
|---|---|---|
| | | from upstream basin |

## Project Title: BRR004

## Key Facts & Information:

We believe this candidate is a good representative project as a model for I/I Problems.

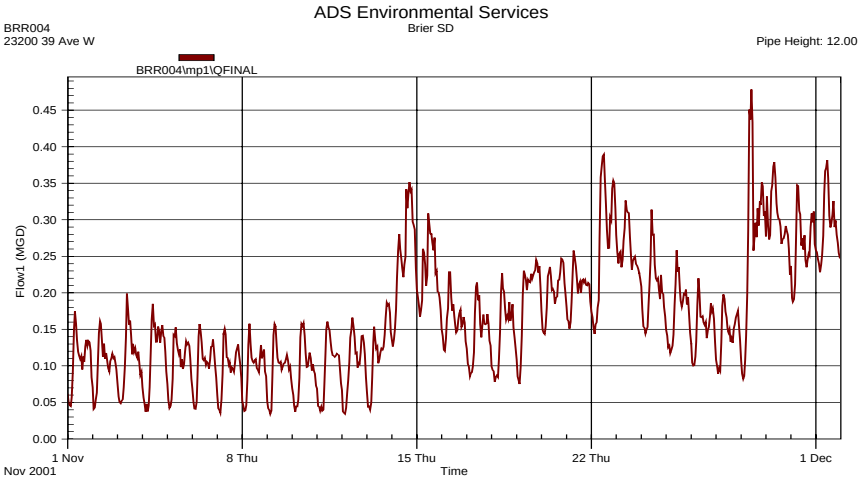
- This candidate has a combination of pipe types ranging from 1967 vintage concrete pipe (the oldest in the city) in the South and East portions of the basin, 1982 vintage PVC pipe to the immediate North and 1997 PVC to the extreme North.
- The South portion of the basin sewer line parallels the headwaters of the East fork of Lyon Creek and the elevation is approximately at creek level. With the probable repairs required near the creek and the proximity to Brier Elementary School (which is located in the basin), it may be possible to consider this as a "WILDCARD" and to enhance the streambed and use the creek as an "adopt a stream" for the Elementary School students.
- We believe that geographically this candidate is the furthest north of the proposed Pilot Program Projects. The vehicular traffic is generally low, which would allow easy access for construction. The basin also contains a Middle School that was built at the time of the original sewer construction and it may be that patio drains are connected to the sanitary sewer system. If this candidate is selected, we will immediately contact the School District Administration for assistance and permission to test their on-site sewage system.
- Some of them manholes as well as the sewer lines are on farily steep slopes (30-40%), private property, and heavily vegetated with native vegetation.
- The sewers in the basin have been TV'ed and if this candidate is selected we will also complete smoke testing.
- There are storm systems in all the plats within the basin; however, with the age, materials, and questionable level of inspection in the 1967 construction period, it is our opinion that many faults in the system may exist that could be corrected without total re-construction. We are also of the opinion that both the 1982 and 1997 sewers constructed in those periods are in good condition which could limit the overall work to be accomplished and assist in not requiring as much as a year to complete the rehabilitation.
- As the City of Brier is a small jurisdiction that is primarily a bedroom community, we have a small staff and limited budget; however, we find it challenging, rewarding and mandatory to be as innovative as possible in accomplishing our given responsibilities.

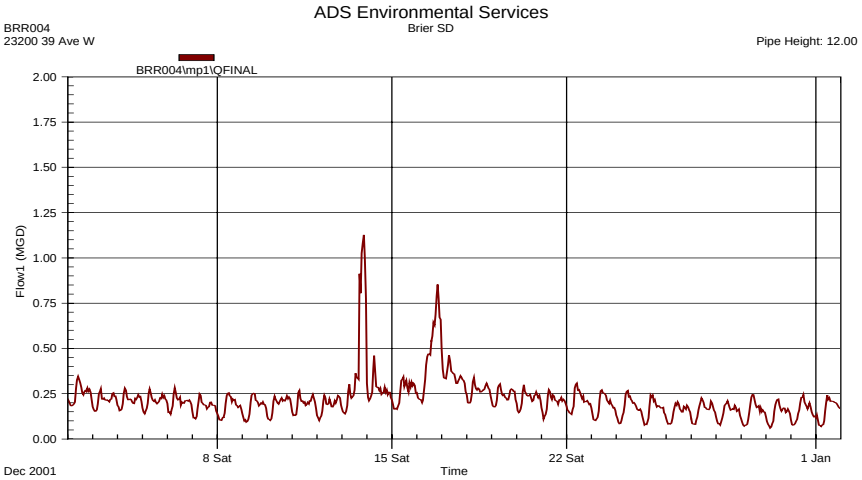
- We try to work "Out of the Box" rather than assuming that "It should be done this way because it's always been done this way." We are not limited or hindered by bureaucracy since our Community Development Staff and the Mayor are the decision-makers.
- Since this basin is located at the Headwaters to Lyon Creek, any correction to exfiltration would definitely enhance the positive effect on downstream ESA.

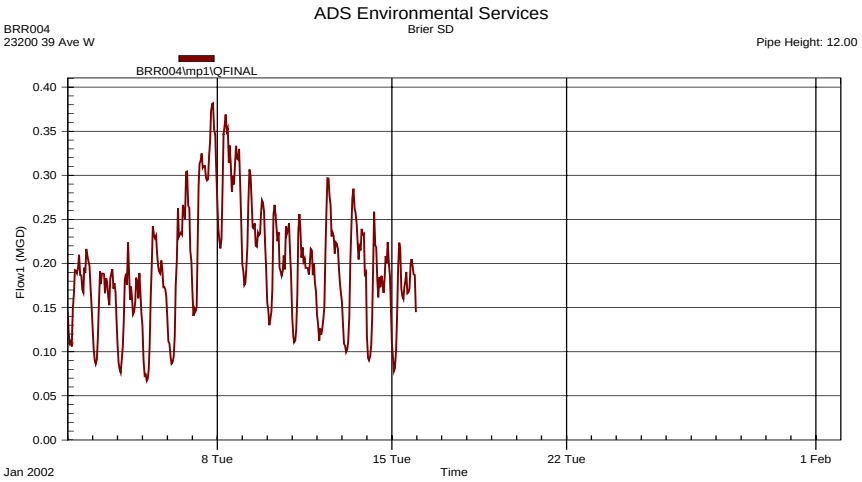
Please consider this as additional information to the Pilot Basin/Project Worksheets:

1. If the City of Brier is selected as a candidate for a Pilot Basin Project at the March 21, 2002 meeting, we will assure you that the selected basin will have TV work completed within 60 days.
2. The City of Brier has a naturally occurring high groundwater table typically at the 2' to 3' depth.
3. The City of Brier candidates are post 1961.
4. The City of Brier would prefer to administer and manage the pilot project; however, if the County has a particular reason to undertake administration that is feasible.
5. The City of Brier will use the proven technology that best suits the I/I correction requirements and follow King County I/I Program Guidelines.
6. The City of Brier geology is predominately glacial till with some steep slopes; however, there are no slide areas.
7. The City of Brier will complete the project within one year.
8. The City of Brier is of the opinion that the candidates represent typical I/I program conditions.
9. The City of Brier candidates do not have flow from upstream basins.
10. The City of Brier candidates will not create any hazards or danger to shorelines, streams, wetlands or steep slopes.

# City of Brier
# BRR004



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** BRR006

**Local Agency:** City of Brier ☐ **Project** ☐ **Basin #:** BRR006

**Contact Person:** Dick Russell **Phone #:** 425-775-5440

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 2,408 gpad** | **4.8 (12/15/01 storm)** | **Peak: 16.6 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Illegal Conn. Spot repairs. Manholes – interior linings. |
| Meets Time Frames for the I/I Program | ✔ | 1 yr time |
| Geographic Representation | ✔ | North |
| "Do No Harm" + Geologic Conditions OK | ✔ | No harm. Near Scriber Creek. |
| System Age | ✔ | 1982 |
| Environmental Benefits | ✔ | Enhanced stream flow. Reduced exfiltration. |
| Addresses Private Sewer Issues | ✔ | Get side sewer easements |
| Provides Regional Impact | ✔ | Will reduce wastewater volumes |
| Model for Future Projects | ✔ | With existing high water table, will be measurable I/I reduction |
| Representative of Typical I/I Problems Region-wide | ✔ | Typical PVC pipe grouted at M.H. with illegal connections |
| Wild Card | ✔ | Measurable reduction of 700% and I/I |

## Project Title: BRR006

## Key Facts & Information:

We believe this is a good representative project as a model for I/I problems.

- This candidate was constructed in 1982 with PVC pipe.
- This plat was constructed in an area that would probably have been designated as a wetland based on the standards used today. Scriber Creek runs through the plat from west to east and there is a designated wetland along most of the north boundary of the plat.
- Due to poor soil conditions and probable poor construction practices, sections of the plat infrastructure have failed and it is our opinion that the failing curb, gutter and sidewalk are an indication that the subsurface sanitary sewer and storm drainage are in similar condition. The ground water table is extremely high and there are underground springs so that in some areas water flows from private property across the sidewalks. Manhole infiltration has also been observed.
- We are suspicious that there may be multiple illegal connections to the sanitary sewer system even though there is a piped storm system.
- Much of the main line is on private property (in backyards) and roughly parallels Scriber Creek.

Please consider this as additional information to the Pilot Basin/Project Worksheets:

11. If the City of Brier is selected as a candidate for a Pilot Basin Project at the March 21, 2002 meeting, we will assure you that the selected basin will have TV work completed within 60 days.
12. The City of Brier has a naturally occurring high groundwater table typically at the 2' to 3' depth.
13. The City of Brier candidates are post 1961.
14. The City of Brier would prefer to administer and manage the pilot project; however, if the County has a particular reason to undertake administration that is feasible.
15. The City of Brier will use the proven technology that best suits the I/I correction requirements and follow King County I/I Program Guidelines.
16. The City of Brier geology is predominately glacial till with some steep slopes; however, there are no slide areas.

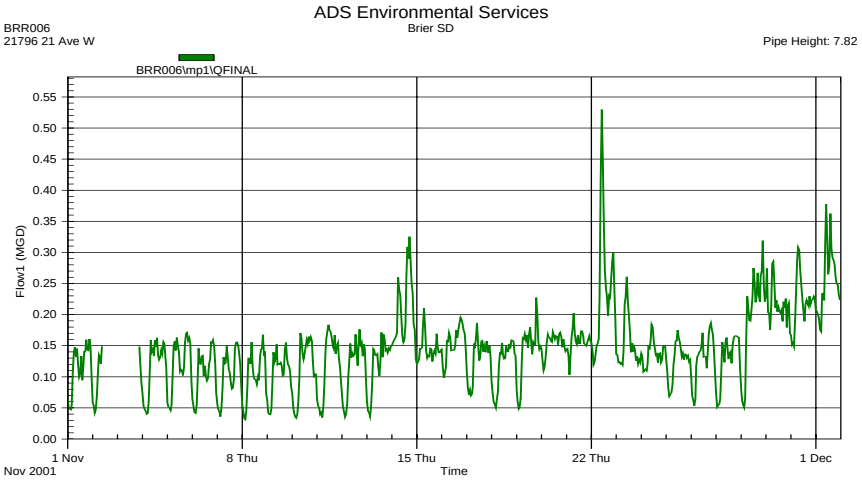
17. The City of Brier will complete the project within one year.

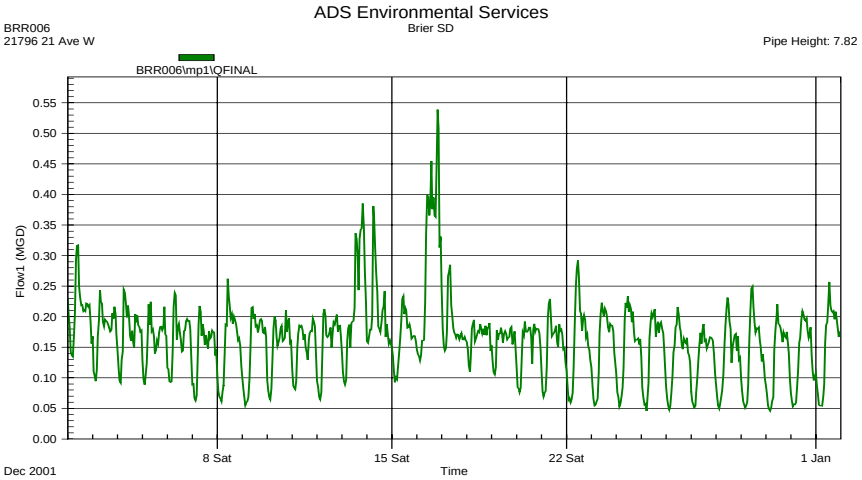
18. The City of Brier is of the opinion that the candidates represent typical I/I program conditions.

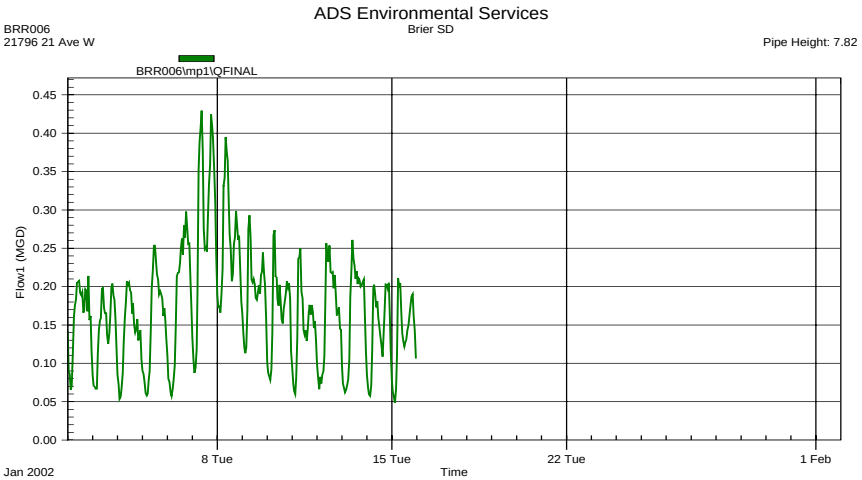
19. The City of Brier candidates do not have flow from upstream basins.

20. The City of Brier candidates will not create any hazards or danger to shorelines, streams, wetlands or steep slopes.

# City of Brier
# BRR006



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** **Basin 6 (From Bryn Mawr I/I Project Identification Dated 1998 – Side Sewer and Main Line Rehabilitation/Replacement)**

**Local Agency:** **Bryn Mawr-Lakeridge** **Project/Basin #:** **BLS002**

**Contact Person:** **Cheryl Scheuerman** **Phone #:** **206-772-7343**

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 27,167 gpad** | **16.6 (12/12/01 storm)** | **Peak: 130.1 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | The various techniques used in this project will be dependent on the characteristics of each specific private property and side sewer involved. Techniques could include traditional digging, pipe bursting, lining or some combination. |
| Meets Time Frames for the I/I Program | ✔ | This project can be completed within one year. Because the side sewer portion of the project was actually a 1998 King County/District I/I pilot project that was never realized, a good portion of it has already been completed. Side sewer topographic survey, base mapping and design is complete. Mainline design would need to be added. Private property "Right of Entry" agreements were obtained in 1998 from all properties owners. These agreements are still valid and only need to be updated for properties that have changed ownership in the last 4 years. Possible permits: King County Grading and Right of Way; DOE Approval. |
| Geographic Representation | ✔ | Southwest region – Bryn Mawr-Lakeridge Water |

| | | |
|---|---|---|
| | | and Sewer District (Lakeridge Area) |
| "Do No Harm" + Geologic Conditions OK | ✔ | No harm. There are no slopes, wetlands or creek-beds in project area. |
| System Age | ✔ | 40+ years. Most all of system was constructed in 1960's and prior. |
| Environmental Benefits | ✔ | This project will reduce the amount of storm water entering the sewers, bringing reductions in sewer collection and treatment/disposal costs. It will help eliminate potential storm event overflows/backups and reduce the potential for periodic, seasonal downstream overflows into Lake Washington. |
| Addresses Private Sewer Issues | ✔ | This project involves both private and public issues. Any issues, however, are expected to be minimal and easily resolved. With the exception of ownership changes since 1998, private right of entry agreements have already been obtained and are still valid. Only updating and customer communication is needed. |
| Provides Regional Impact | ✔ | Since Bryn Mawr-Lakeridge's Basin #6 was previously documented to be King County's #1 I/I contributor, this project was determined to have regional benefit. As indicated above, King County actually approved it as a "pilot" project in 1998 when it agreed to share in its funding because of the significant regional benefit expected. The project was fully designed and put out to bid twice – once in the summer of 1998 and again in the winter of 1999. Due to a myriad of complex cost and funding circumstances, however, bid was not awarded and the project was abandoned. Its need and regional benefit remain to date. |
| Model for Future Projects | ✔ | Side sewer replacement model. As indicated above, this project was established as a 1998 pilot in which King County agreed to share in funding because of the significant modeling potential and regional benefit that it was expected to provide. While funding issues led to the project's abandonment, the positive modeling potential of this project remains to date. Old faulty side sewers have been determined to be a major I/I contributor. Prior project bids confirm contractor and cost efficiencies to be realized if main line is replaced at the same time as side sewers. This project will help quantify the benefit of side sewer and mainline replacement together. |
| Representative of Typical I/I Problems Region-wide | ✔ | Old and faulty side sewers have been determined to be the major I/I contributor in prior studies. This area is no exception. This project will help quantify the benefit of side sewer replacement coupled with main line replacement. |

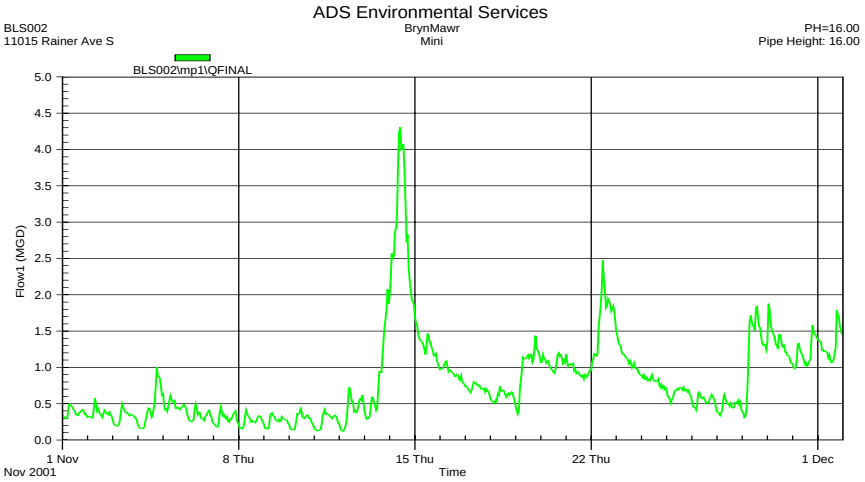
| | | |
|---|---|---|
| Wild Card | ✔ | As indicated above, this project was originally established as a King County pilot project in 1998. It was fully designed and private property rights of entry were obtained. Public education and hearings were accomplished. The project was bid twice, but both bids came in significantly higher than estimated, due to two reasons: 1) the underestimating of street overlay costs; 2) low contractor efficiency and cost efficiency in replacing only side sewers without mainline replacement at the same time. The project was subsequently abandoned due to increased costs and funding restrictions. With just a bit of "tweaking", this project can be accomplished on an extremely "fast tract" basis. Side sewer design has already been completed. Only main line design would need to be added. The Basin's residents are already educated with regard to the District's and King County's I/I reduction program and are cooperative. All private property rights of entry agreements were obtained and are still valid. They only need updating for ownership changes. Regional benefit and participation were previously confirmed. All of the reasons it was considered a great pilot project in 1998 remain the same to date. Given technology improvements over the past four years and the current economy, construction bids would be expected to be extremely competitive. The funding issues that halted the 1998 project should not apply in 2002. Any costs in excess of King County's pilot project allocation would be borne by the District. |

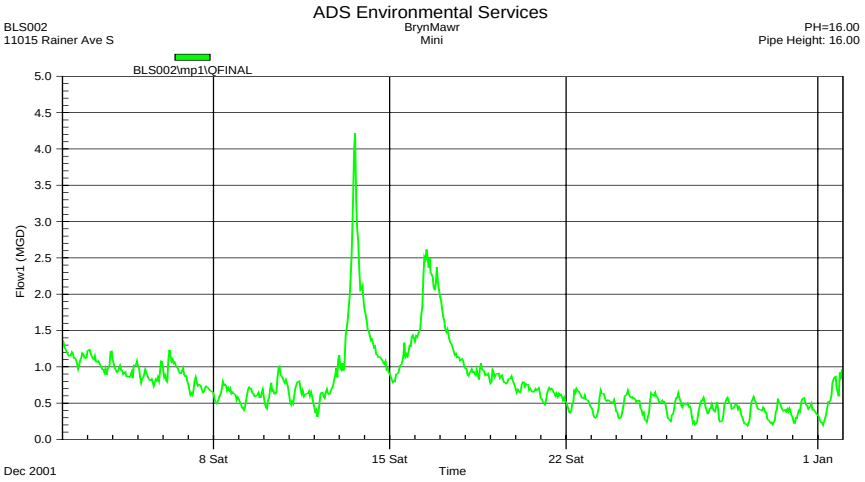
## **Project Title:** Basin 6 Side Sewer and Mainline Replacement

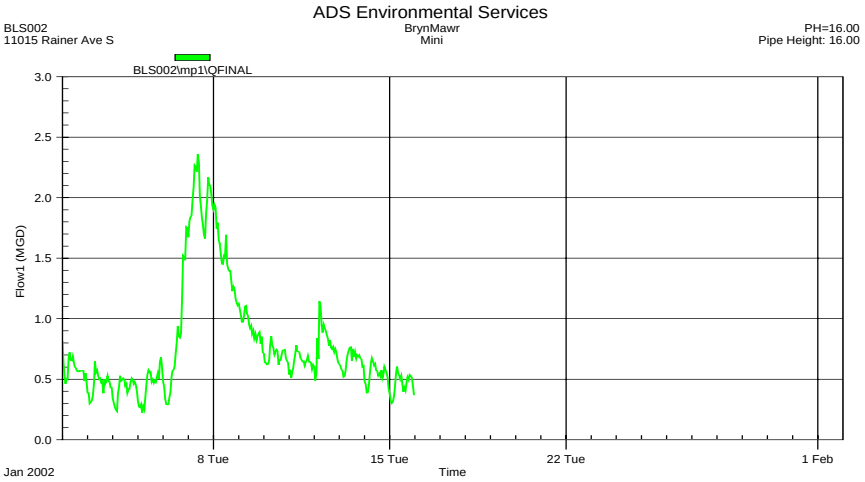
## Key Facts & Information:

Rehabilitation and replacement of 169 side sewers (4"-6"), including installation of cleanouts at the house, replacement of sewer main tee sections, and replacement of approximately 9,962 lineal feet of 8" sewer mainline with 39 associated manholes. This basin was designated as King County's #1 I/I area in 1996.

# Bryn Mawr – Lakeridge Water & Sewer District
# BLS002



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** ISS014

**Local Agency:** City of Issaquah ☐ **Project** ☐ **Basin #:** ISS014

**Contact Person:** Kerry Ritland **Phone #:** 425-837-3400

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 3,572 gpad** | **7.6 (11/13/01 storm)** | **Peak: 17.3 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Pipe lining (Insituform) and in-situ lining/repair of problematic side sewer connections |
| Meets Time Frames for the I/I Program | ✔ | City has extensive experience with reline projects |
| Geographic Representation | ✔ | East |
| "Do No Harm" + Geologic Conditions OK | | Residential development on hillside terrain |
| System Age | ✔ | 1960's installation period by developer |
| Environmental Benefits | | Reduced likelihood of surcharging to surface waters |
| Addresses Private Sewer Issues | | Public. Although side sewers are private ownership according to City code, lining of lower 5 feet at connection to main will likely solve most infiltration problems associated with side sewer because of poorly constructed connections to main |
| Provides Regional Impact | ✔ | May reduce need for downstream capacity improvements on regional system, including interceptor serving Issaquah and Sammamish that was identified by Metro as potentially needing capacity upgrade |

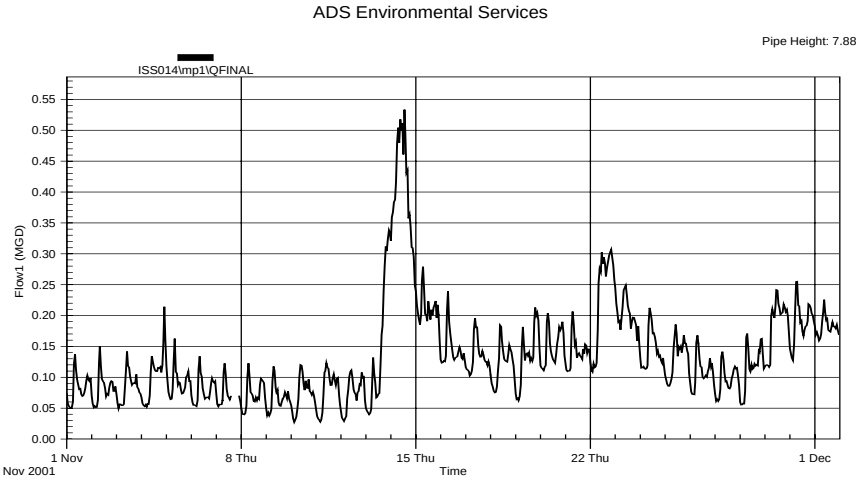
| | | |
|---|---|---|
| Model for Future Projects | ✔ | Tests feasibility of repairing side sewers, which were poorly constructed, along with in-situ lining of concrete mains that are deteriorating due to exposure to acidic water |
| Representative of Typical I/I Problems Region-wide | ✔ | Typical of installations on hilly terrain with shallow soils over hard till. Substantial interflow in soils contributes to infiltration along mains and side sewer connections |
| Wild Card | | |

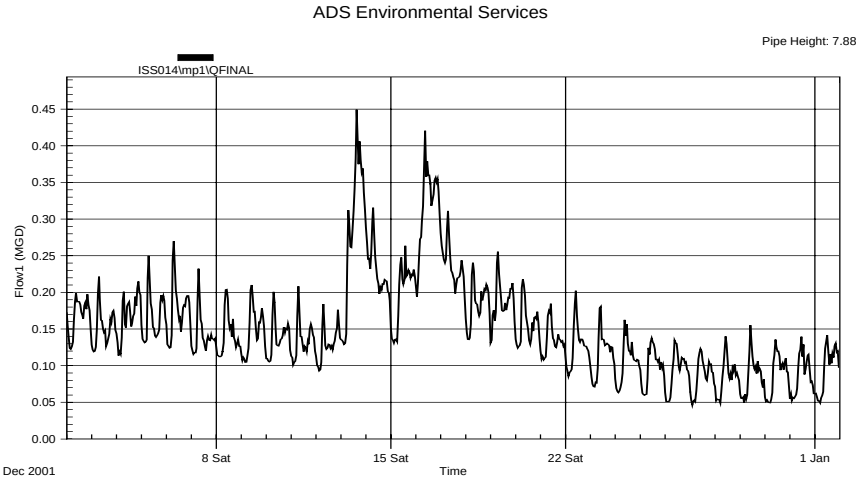
## Project Title: ISS014

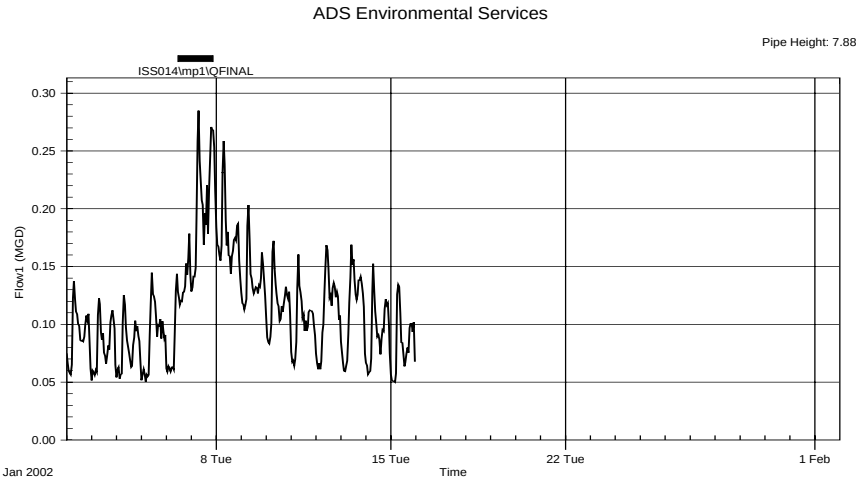
## Key Facts & Information:

1960's era 8" concrete sewer lines on Squak Mt. (ISS002 is nearly identical)

# City of Issaquah
# ISS014



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** KNT014

**Local Agency:** City of Kent ☐ **Project** ☐ **Basin #:** KNT014

**Contact Person:** Dave Brock **Phone #:** 253-856-5658

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ■ Inflow ☐ Infiltration ☐ Both ☐ Unknown
☐ Public ■ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 7,709 gpad** | **9.9 (11/13/01 storm)** | **Peak: 52.4 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Project is a candidate for side sewer repairs, deform and form within side sewers, removal/dig/replace existing side sewers. |
| Meets Time Frames for the I/I Program | ✔ | It is anticipated the only permits required for this project are SEPA and a Street Use Permit. The City of Kent has existing staff available to design, bid, obtain permits, perform SSES evaluations, and provide construction inspection for this proposed pilot project by the fall of 2003. |
| Geographic Representation | ✔ | The proposed project is within the South geographic area and will provide valuable I/I removal data for all 34 collection agencies. |
| "Do No Harm" + Geologic Conditions OK | ✔ | The proposed project is within the area which does not have a high groundwater table or steep slopes. The soil type within project area "hard pan." |
| System Age | ✔ | The majority of the collection system for the proposed project was constructed between 1959 – 1962. |
| Environmental Benefits | ✔ | Historically sewer overflows have occurred at the Linda Heights PS during significant rain fall events |

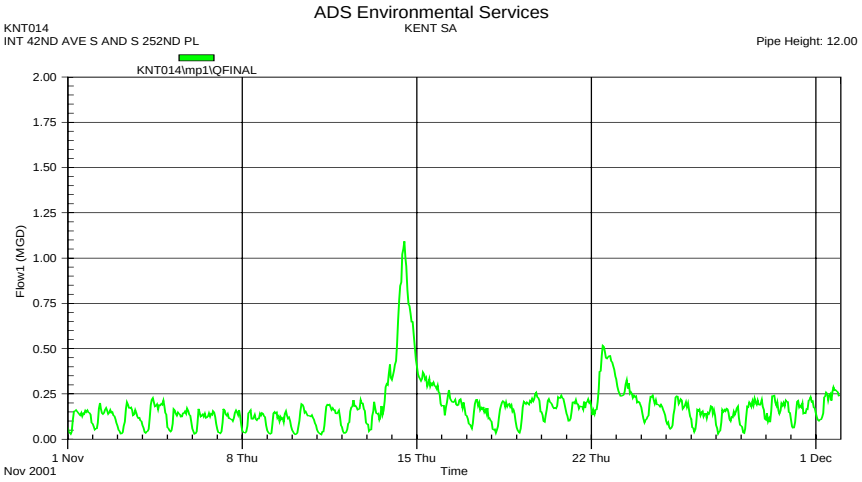
| | | |
|---|---|---|
| | | (1-2 times per year). Elimination of the inflow connections and installation of appropriate infiltration systems (where feasible) with overflows to the existing storm water collection systems, will promote aquifer recharge and reduce/eliminate sewer overflows at the PS. The majority of the rehabilitation work associated with this project is anticipated to be on private side sewers. Therefore, this project will provide the opportunity to educate the public of the importance of the regional I/I reduction program and evaluating the political impacts of performing work on private property and systems. |
| Addresses Private Sewer Issues | ✔ | The proposed project is a model project for side sewer I/I reduction evaluation. |
| Provides Regional Impact | ✔ | The collection system within the pilot project basin is tributary to METRO's interceptor and is conveyed to the Renton Treatment Plant. |
| Model for Future Projects | ✔ | The proposed project is a model project for side sewer I/I reduction evaluation. |
| Representative of Typical I/I Problems Region-wide | ✔ | Please see Key Facts & Information section. |
| Wild Card | | |

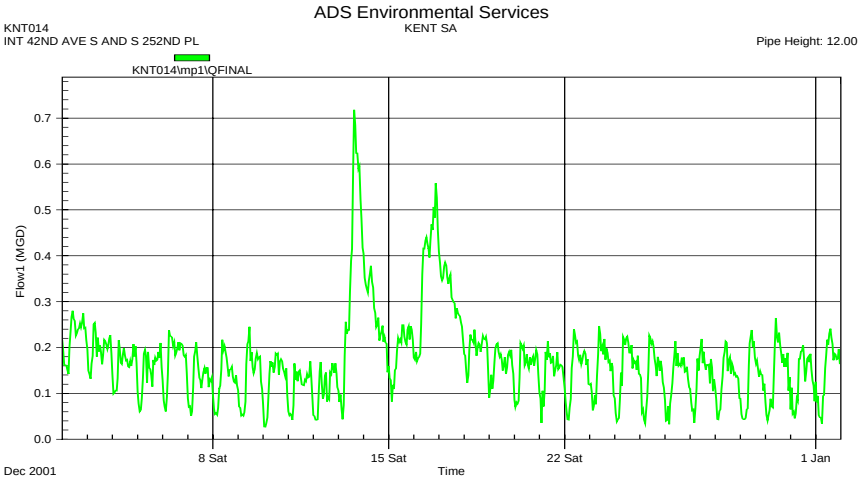
## Project Title: KNT014

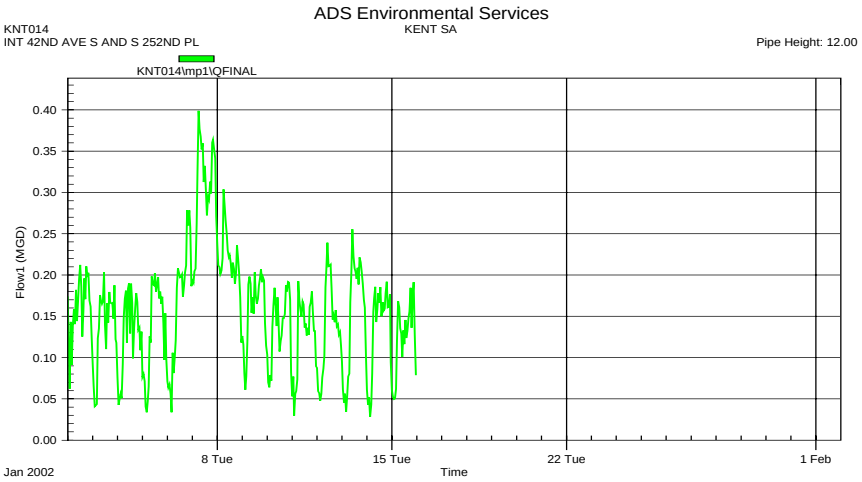
## Key Facts & Information:

The proposed KNT014 Pilot Project is located on the West Hill of Kent. The collection system consists of approximately 19,138 feet of 8-inch and 10-inch concrete pipe with concrete manholes. The 8-inch and 10-inch pipe lengths range from 4-6 feet and have rubber gasket joints. There are approximately 230 active side sewers that connect to the main lines (additional side sewers connect directly to manholes). The City of Kent Sewer Division completed TV inspecting all publicly maintained lines during the winter of 2000/2001. Results from the TV reports (available upon request) indicate the main lines are in good condition with a few areas of root intrusion and a couple of holes (potential infiltration). This leads the City to believe the inflow within this basin is a result of illicit roof / foundation drain connections to side sewers. It is the City's position this project would provide an educational benefit to the public, politicians, the 34 sewerage collection agencies, provide environmental benefits, and meets all 10 selection criteria. In addition the project would require the establishment of a methodology/procedure for working with the public to obtain access to private property to perform rehabilitation work. This methodology/procedure would be valuable to all 34 collection agencies.

# City of Kent
# KNT014



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** KRK006 Central Way Sub-Basin

**Local Agency:** City of Kirkland ☐ **Project** ☐ **Basin #:** KRK006

**Contact Person:** Greg Kremer **Phone #:** 425-828-1137

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 6,745 gpad** | **12.9 (12/15/01 storm)** | **Peak: 36.1 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | SS repairs, illegal connections – foundation drains, dig & repair R&R side sewer from main to house |
| Meets Time Frames for the I/I Program | ✔ | |
| Geographic Representation | ✔ | East |
| "Do No Harm" + Geologic Conditions OK | | N/A |
| System Age | | 1941 |
| Environmental Benefits | ✔ | Removal of I/I will enhance stream flow, reduce sewer overflow @ KC 3 St. & Parklane pump station, & minimal public impacts. |
| Addresses Private Sewer Issues | ✔ | Private. In Kirkland Private=main to house/structure. Roof & foundation drains, & side sewer infiltration. |
| Provides Regional Impact | ✔ | This sub-basin flows to KC 3 St. & Parklane pump station, I/I reduction will aid in the station's planned rehabilitation & gen-set project. |
| Model for Future Projects | ✔ | |

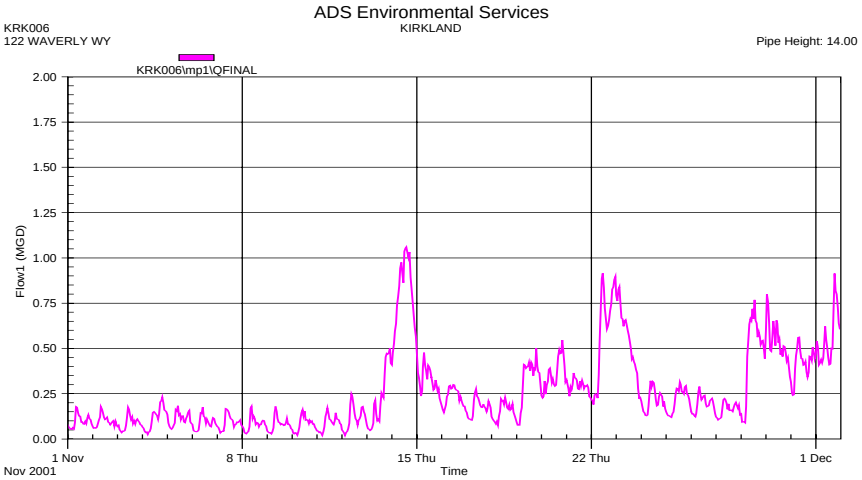
| | | |
|---|---|---|
| Representative of Typical I/I Problems Region-wide | ✔ | Removal of I/I on private side sewer/lateral |
| Wild Card | ✔ | City of Kirkland has funded $1.1 million for I/I reduction in 5 year period. Smoke testing has been conducted. |

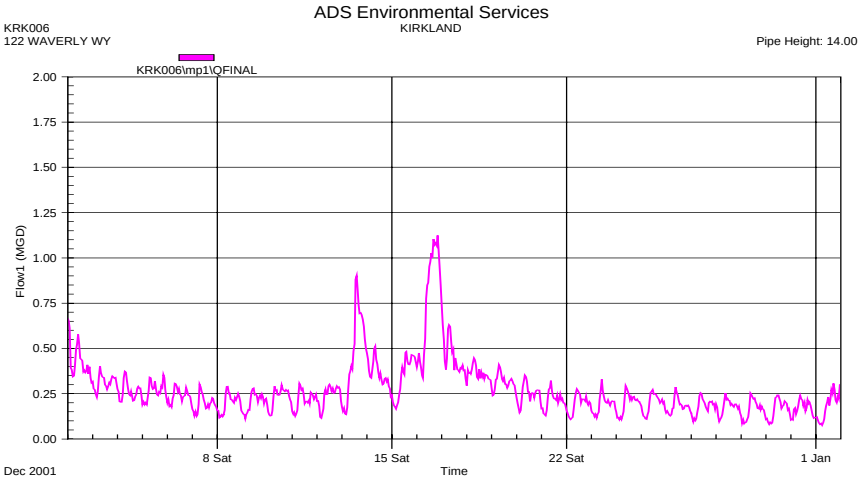
## Project Title: KRK006

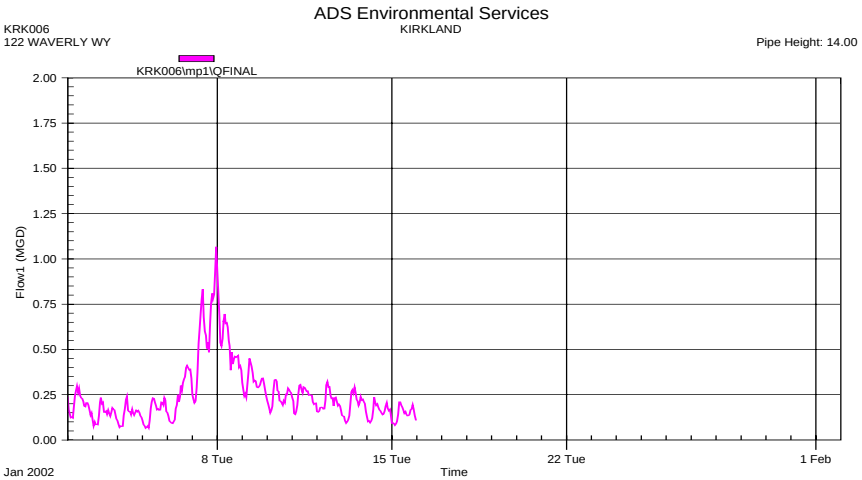
## Key Facts & Information:

- All basin sewage flows into King County's 3 st & Parklane pump station, overflows occur and discharge at the Marina park boat launch ramp. Reduction of I/I would reduce pumping operation (power consumption) and K.C.'s pump station is considering rehabilitation and generator installation.
- Pipe age 1941, with 75% of pipe 6" diameter.
- Sewer trunk line replaced in 2001, 6,500 lineal feet.
- Smoke tests were conducted 1996 & 1997, @ 23 locations, photo's & video are available.
- Sewer mains have not been video inspected.
- Service area has springs throughout.
- Not fully developed storm drainage system, opportunity for joint sewer/storm drain project.
- Clear water flowing observed by maintenance staff.
- City of Kirkland owns sewer main only, residents own from home to City main.
- No manhole I/I is known.
- City of Kirkland has $1.1 million in I/I reduction funds available.

# City of Kirkland
# KRK006



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** KRK011 Central Way Sub-Basin

**Local Agency:** City of Kirkland ☐ **Project** ☐ **Basin #:** KRK011

**Contact Person:** Greg Kremer **Phone #:** 425-828-1137

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 7,289 gpad** | **3.4 (11/13/01 storm)** | **Peak: 53.3 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | SS repairs, illegal connections – foundation drains, dig & repair R&R side sewer from main to house |
| Meets Time Frames for the I/I Program | ✔ | |
| Geographic Representation | ✔ | East |
| "Do No Harm" + Geologic Conditions OK | | N/A |
| System Age | | 1941 |
| Environmental Benefits | ✔ | Removal of I&I will enhance stream flow, reduce sewer overflow @ KC 3 St. & Parklane pump station, & minimal public impacts. |
| Addresses Private Sewer Issues | ✔ | Private. In Kirkland Private=main to house/structure. Roof & foundation drains, & side sewer infiltration. |
| Provides Regional Impact | ✔ | This sub-basin flows to KC 3 St. & Parklane pump station, I/I reduction will aid in the station's planned rehabilitation & gen-set project. |
| Model for Future Projects | ✔ | |

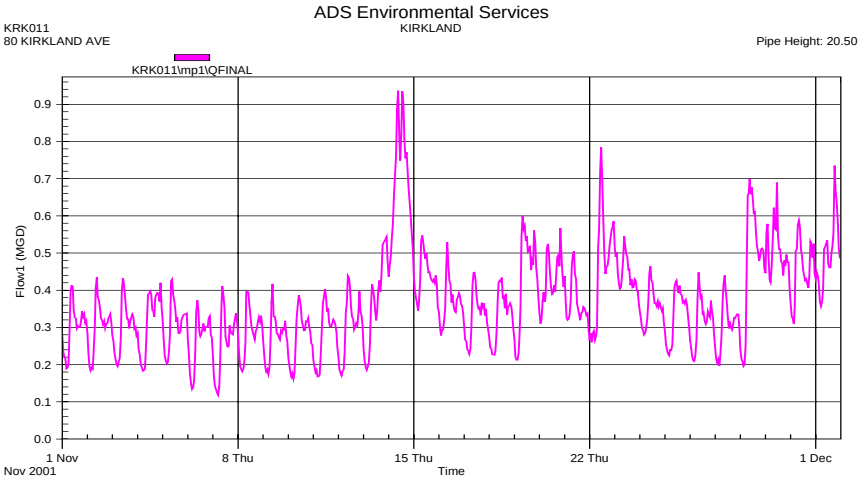
| | | |
|---|---|---|
| Representative of Typical I/I Problems Region-wide | ✔ | Removal of I/I on private side sewer/lateral |
| Wild Card | ✔ | City of Kirkland has funded $1.1 million for I&I reduction in 5 year period. Smoke testing has been conducted. LBBVLD trunk line was replaced, 50% reduction of I/I from that project. |

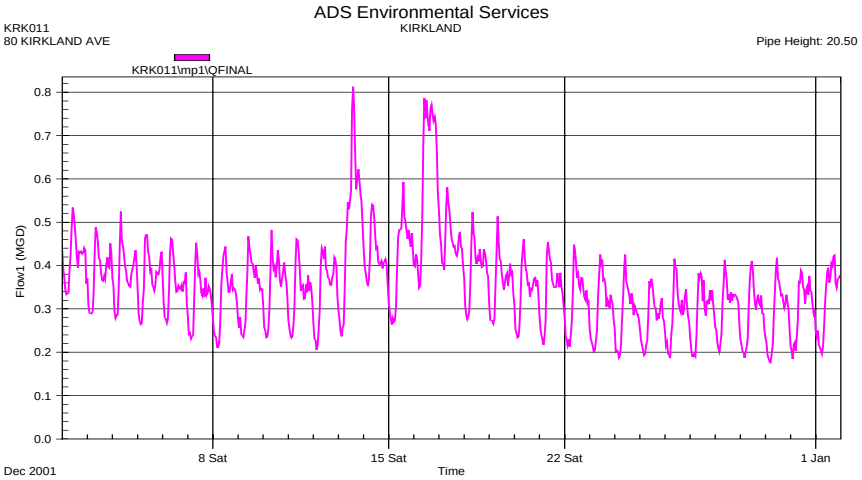
## Project Title: KRK011

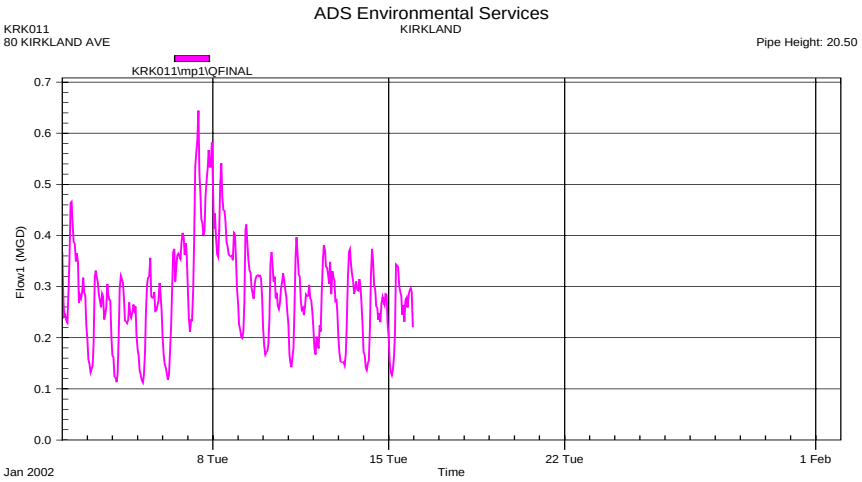
## Key Facts & Information:

- All basin sewage flows into City of Kirkland's Plaza pump station, which flows to King County's 3 St & Parklane pump station, overflows occur and discharge at the Marina park boat launch ramp. Reduction of I/I would reduce pumping operation (power consumption) and K.C.'s pump station is considering rehabilitation and generator installation.
- City's sewer trunk line was replaced in 1993-1995, 8,461 lineal feet, adjacent to Lake Washington.
- Pre-trunk line replacement I/I was in excess of 1800 gpm, afterwards 800 gpm
- Pipe age 60% 1941
- Smoke tests were conducted 1996 & 1997, @ 16 locations, photo's & video are available.
- Sewer mains have not been video inspected.
- Service area has severe springs throughout.
- Not fully developed storm drainage system, opportunity for joint sewer/storm drain project.
- Clear water flowing observed by maintenance staff.
- City of Kirkland owns sewer main only, residents own from home to City main.
- No manhole I/I is known.
- City of Kirkland has $1.1 million in I/I reduction funds available.

# City of Kirkland
# KRK011



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** RON041 (LFP)

**Local Agency:** City of Lake Forest Park ☐ **Project** ☐ **Basin #:** RON041

**Contact Person:** Doug Jacobson (LFP) **Phone #:** 206-368-5440

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 7,962 gpad** | **14.0 (12/15/01 storm)** | **Peak: 48.3 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Trenchless and in-pipe rehab. Direct stormwater connections and driveway drains. Old mainline repair or replacement. |
| Meets Time Frames for the I/I Program | ✔ | Permits required: Right-of-Way, Right-of-Entry (ROE) (for work on private property, no environmental sensitivity) |
| Geographic Representation | ✔ | Northern King County |
| "Do No Harm" + Geologic Conditions OK | ✔ | No streams or known wetlands. Easily accessible. |
| System Age | ✔ | Generally 40+ years, however there are some lines that are reported to be over 70 years old. |
| Environmental Benefits | ✔ | Reduces sewer overflows and capacity issues in the Lake Washington Interceptor Line |
| Addresses Private Sewer Issues | ✔ | Public & Private. Project will require ROE. |
| Provides Regional Impact | ✔ | Significant reduction potential from a system that exhibits sever I/I |
| Model for Future Projects | ✔ | Post repair monitoring will identify the benefit |

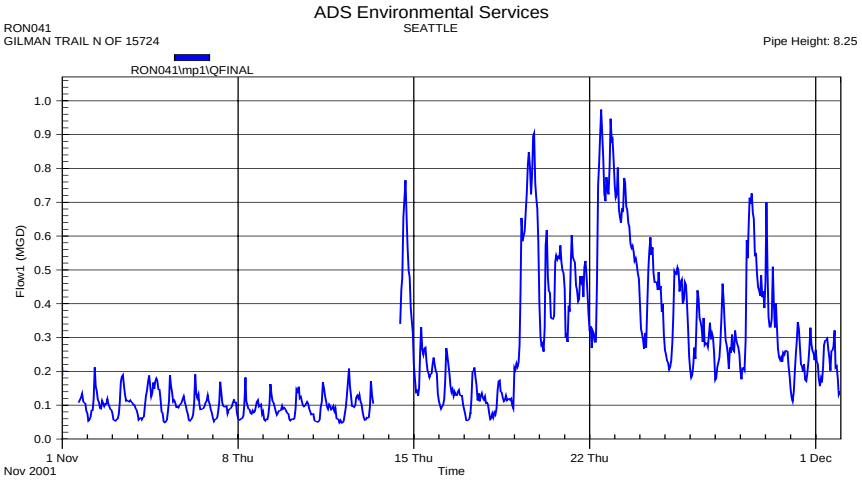
| | | |
|---|---|---|
| Representative of Typical I/I Problems Region-wide | ✔ | Typical of the older SPU system which has shown some signs of neglect over the years. |
| Wild Card | | No upstream flow component, some TV work and MH inspection has taken place. |

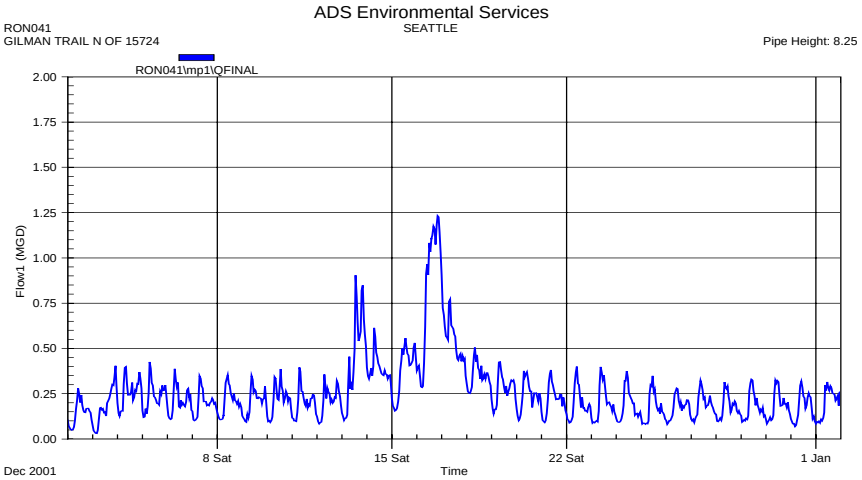
## Project Title: RON041

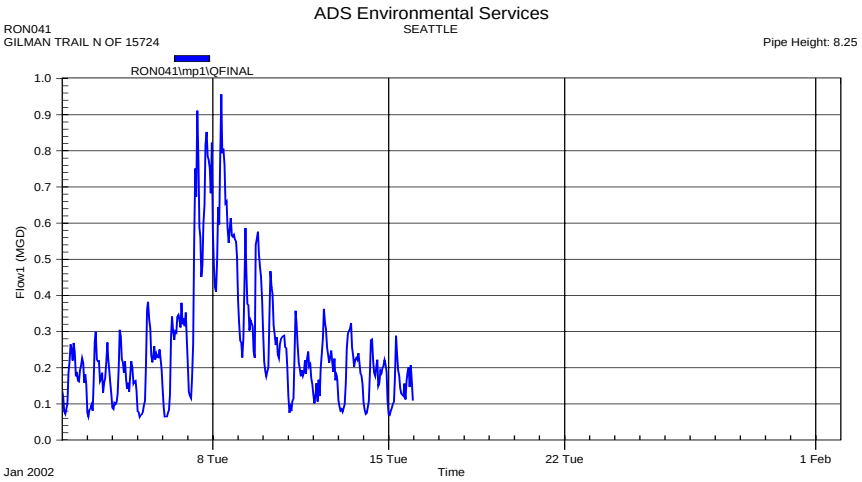
## Key Facts & Information:

- Objective: Suspected direct connections and sources of inflow.
- Mainline structural integrity has been reported to be in jeopardy. Reported joint displacement, longitudinal cracking and sagging.
- Estimated age is greater than 40 years and as much as 70 years old in some locations
- No Upstream flow contribution
- Directly connects to the Lake Washington Interceptor line which has a history of capacity problems
- This pilot will be representative of the Seattle Utilities (SPU) system north of 145th which contributes a significant volume of I/I to the King County system

# City of Lake Forest Park
# RON041



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title: MRC012**

**Local Agency: City of Mercer Island** ☐ **Project** ■ **Basin #: MRC012**
**(East Seattle Grid #54)**

**Contact Person: Pat White & Patrick Y.** **Phone #: 206-236-3620**

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ■ Inflow ☐ Infiltration ☐ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 13,719 gpad** | **21.4 (11/13/01 storm)** | **Peak: 67.6 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Use of trenchless rehabilitation (pipe bursting, lining, joint sealing), and open cut methods to control inflow from roof & yard drains and infiltration from pipe joints. |
| Meets Time Frames for the I/I Program | ✔ | Not in shoreline or critical areas. |
| Geographic Representation | ✔ | East region |
| "Do No Harm" + Geologic Conditions OK | ✔ | Flat to Moderate Slopes, some large lots. Mainly single family with a few multifamily developments. Fully developed. Pilot project would not affect slope stability. |
| System Age | ✔ | 46 years old. Constructed in 1956. Public system constructed mostly of concrete. Side sewers are mostly concrete and clay. |
| Environmental Benefits | ✔ | • Reduce likelihood of over flows to Lake Washington.<br>• Reduce sewer back ups and claims. |
| Addresses Private Sewer Issues | ✔ | • Majority of inflow expected from private property based on smoke testing. |

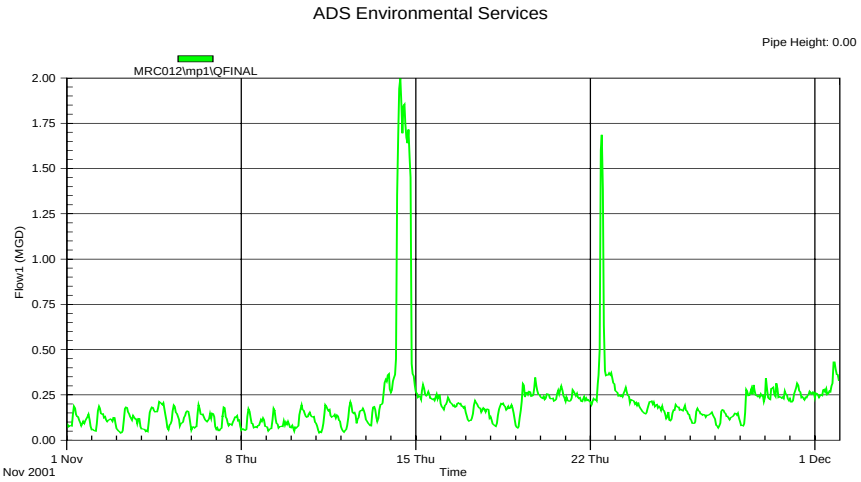
| | | |
|---|---|---|
| | | • Work on private property would be accomplished by agreement with property owner.<br>• May need to improve the public drainage system in some locations as part of roof drain disconnection if public drainage system is not available or is too high. Stormwater utility could fund a portion of public drainage improvements. |
| Provides Regional Impact | ✔ | Will reduce the local flows conveyed to the regional conveyance system and Renton treatment plant via KC's north Mercer Island pump station. |
| Model for Future Projects | ✔ | Private Sewer Issues – downspout disconnection and other work on private property (smoke test data available). |
| Representative of Typical I/I Problems Region-wide | ✔ | Inflow and some infiltration on private property. |
| Wild Card | | |

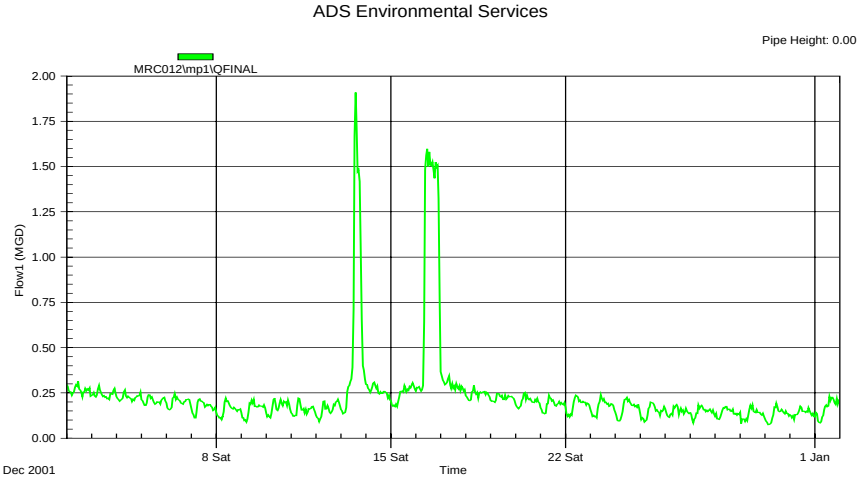
## Project Title: MRC012

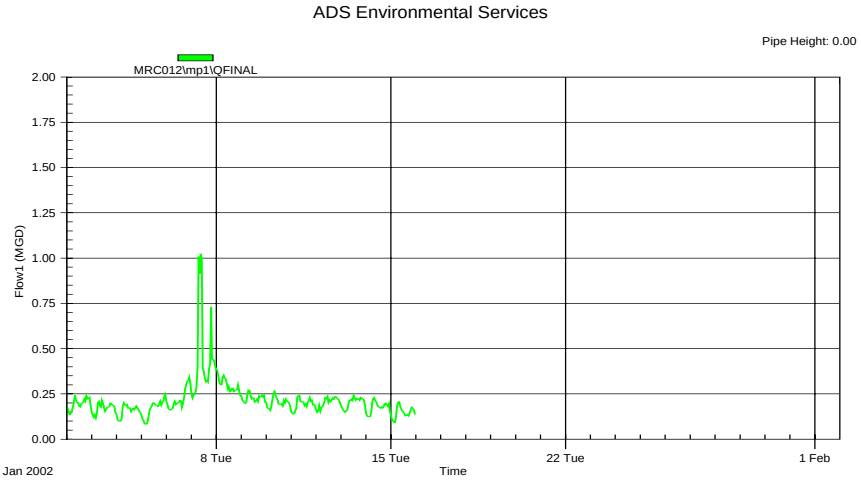
## Key Facts & Information:

Peaking factor in this basin exceeds 20. This basin was the first area developed on Mercer Island. Development began in the early 1900's as Seattleites built weekend and vacation cabins. Most of Mercer Island's public sewer system was constructed in the 1950's and 1960's by three sewer LIDs. The sewers in this basin were constructed by LID #1 in 1956 and are typical of what exists in the region (8-inch diameter concrete). Available system information includes GIS maps and as-builts of mains, many side sewer as-builts, CCTV records (40% of the basin) and smoke test results. Direct sources of inflow from the public drainage system were removed following smoke testing of the basin in late 1980's. Smoke testing also revealed several sources of inflow on private properties.

# City of Mercer Island
# MRC012



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** MRPS24

**Local Agency:** City of Mercer Island ■ **Project** ■ **Basin #:** MRPS24
**(Mercerwood Grid #40)**

**Contact Person:** Pat White & Patrick Y. **Phone #:** 206-236-3620

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 2,797 gpad** | **9.7 (12/15/01 storm)** | **Peak: 17.5 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Use of a combination of trenchless rehabilitation techniques (pipe bursting, lining, joint sealing, MH sealing) and open cut to control high infiltration on mains and I/I from some side sewers |
| Meets Time Frames for the I/I Program | ✔ | Not in shorelines or critical areas. |
| Geographic Representation | ✔ | East region |
| "Do No Harm" + Geologic Conditions OK | ✔ | Flat to Moderate Slopes, some large lots. Mainly single family residential. Fully developed. Moderate to high winter water table in 30-40 percent of the basin. Pilot project should not affect slope stability. Most mains are in public right of way. |
| System Age | ✔ | Constructed during the 1960's sometime as part of East Mercer Sewer District. Taken over by Mercer Island in 1988. |
| Environmental Benefits | ✔ | • Provide aquifer recharge.<br>• Reduce likelihood of over flows to Lake Washington |

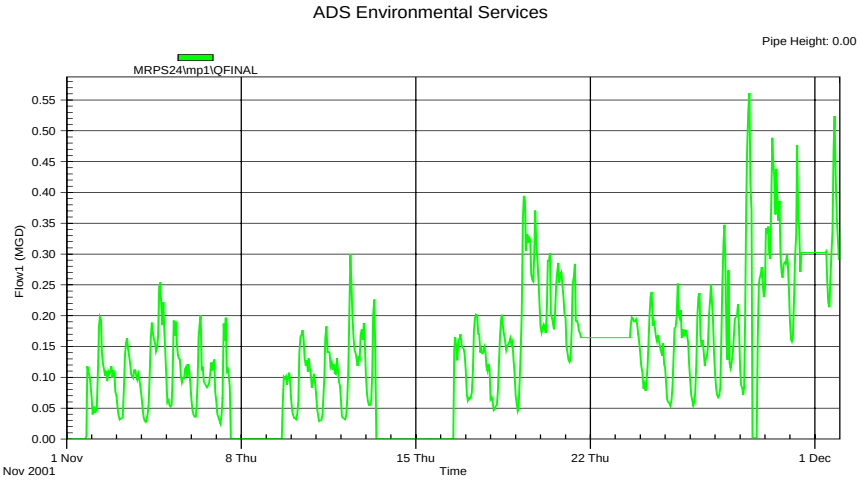
| | | |
|---|---|---|
| | | • Reduce likelihood of sewer back ups and claims.<br>• Reduce conveyance of I/I flows to KC conveyance system and Renton treatment plant.<br>• Reduction of pumping and O & M costs (flows from this basin are conveyed through three Mercer Island lift stations and KC's south Mercer Island pump station). |
| Addresses Private Sewer Issues | ✔ | Some I/I sources were observed on private property during previous SSES effort. Work would be accomplished by agreement with property owner. |
| Provides Regional Impact | ✔ | Will reduce the local flows conveyed to the regional conveyance system and Renton treatment plant via KC's south Mercer Island pump station. |
| Model for Future Projects | ✔ | Trenchless rehabilitation/replacement of mains and open cut replacement of side sewer connections. Removal of infiltration from public sewer mains in right of way and connections between mains and side sewers. Also some I/I removal from side sewers on private property (extensive SSES performed in 1990s). |
| Representative of Typical I/I Problems Region-wide | ✔ | Infiltration in public mains and connections to mains. |
| Wild Card | | |

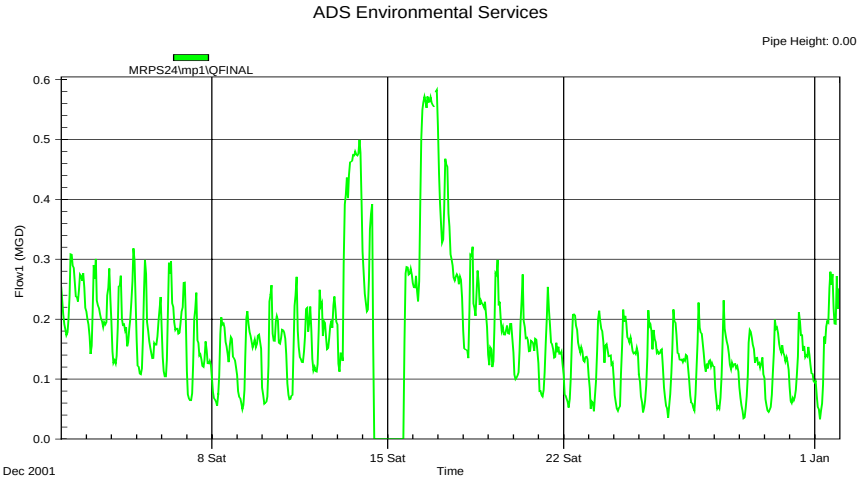
## Project Title: MRPS24

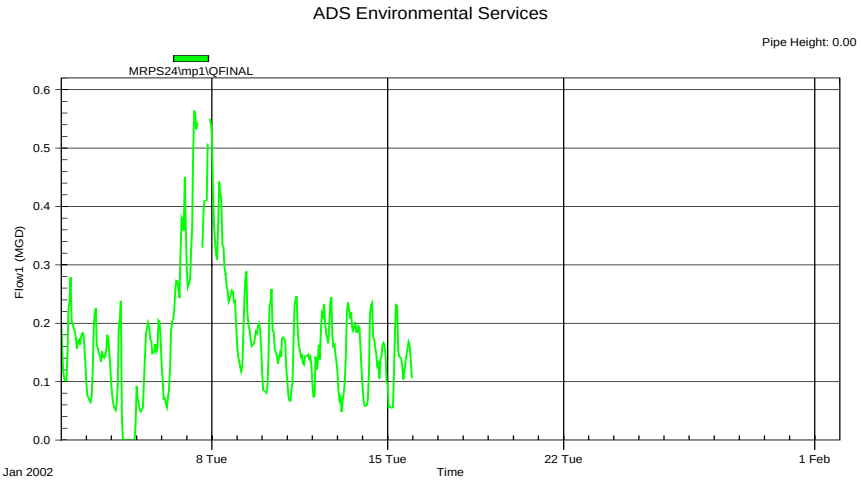
## Key Facts & Information:

The sewers in this basin were constructed by the East Mercer Sewer District in the 1960s and were taken over by Mercer Island in 1988. The area is fully developed. The system was smoke tested in 1995 and CCTV performed in 1998. The SSES results showed that the winter water table is higher than the main in many locations. The age and material of the main is typical of what exists in the region (8-inch diameter concrete, 3-foot lengths). SSES information includes smoke test results. CCTV records, and GIS map of sewer system. Flows from basin are conveyed through three Mercer Island lift stations and KC's south Mercer Island pump station. System capacity is a concern during major storm events.

# City of Mercer Island
# MRPS24



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** NUD024

**Local Agency:** Northshore Utility Dist. ☐ **Project** ☐ **Basin #:** NUD024

**Contact Person:** Matt Everett **Phone #:** 425-398-4428

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 2,860 gpad** | **5.4 (12/15/01 storm)** | **Peak: 16.8 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Until SSES work has been completed, we are not sure where the I/I is originating. The District is open to various types of proven technologies and rehabilitation techniques. |
| Meets Time Frames for the I/I Program | ✔ | No apparent wetlands, rivers, lakes or steep slopes in sewer basin. Permitting should not be a problem. |
| Geographic Representation | ✔ | North-end (King County) |
| "Do No Harm" + Geologic Conditions OK | ✔ | No problems/No rivers or lakes. Relatively flat. Easily accessible. |
| System Age | ✔ | All post-1961. Pipe is 50% concrete (35 yrs. old) and 50% PVC (20 yrs. old & newer). |
| Environmental Benefits | ✔ | Able to reduce I/I into Juanita Pump Station. |
| Addresses Private Sewer Issues | ✔ | Most problems in laterals; District responsible to R.O.W. line and customers responsible on private property. |
| Provides Regional Impact | ✔ | Ability to reduce 280,000 gal/day I/I into K.C.'s Juanita Pump Station, which is already at capacity. |

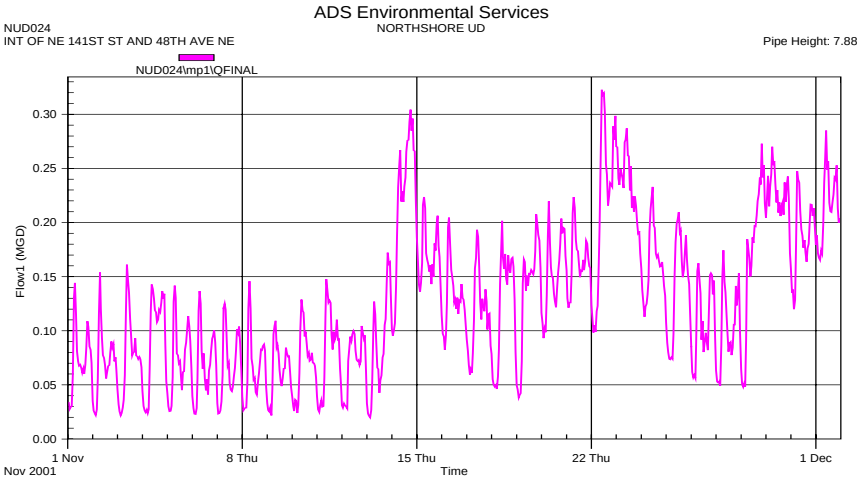
| | | |
|---|---|---|
| Model for Future Projects | ✔ | The pilot project would provide information on how to best rehab older concrete pipes and manholes. Would entail some lateral work. |
| Representative of Typical I/I Problems Region-wide | ✔ | Failed concrete pipe joints and leaky manholes are typical region-wide problems. |
| Wild Card | | |

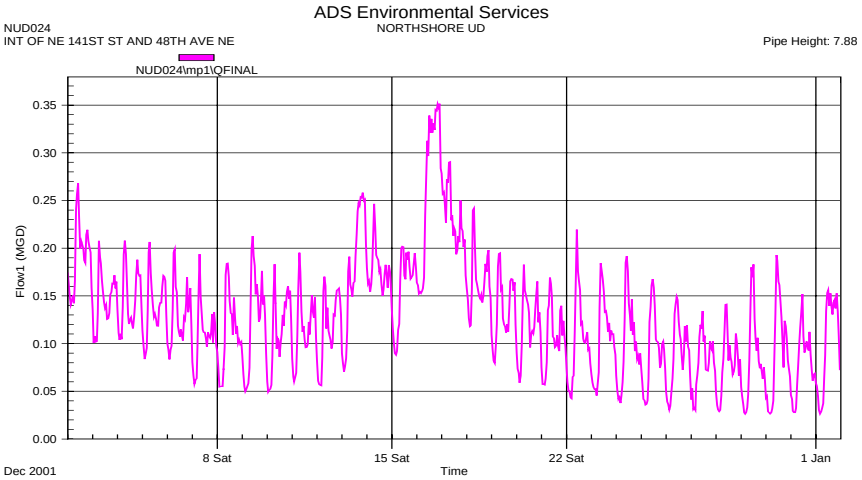
## Project Title: NUD024

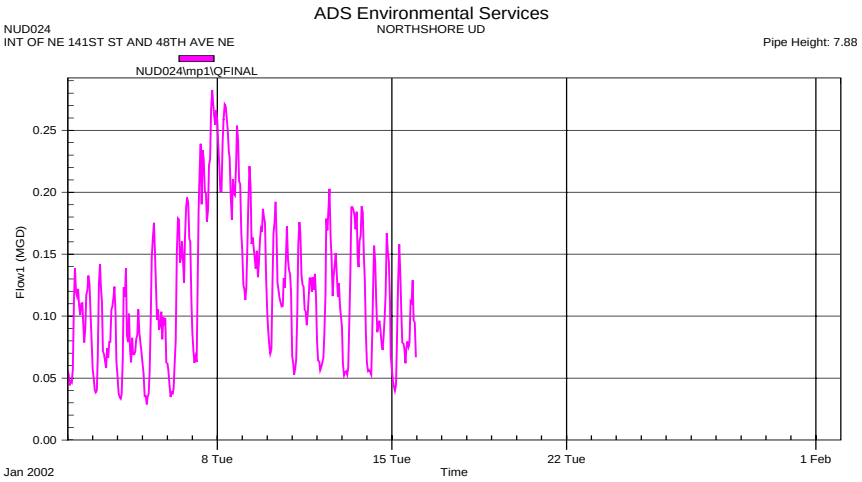
## Key Facts & Information:

- Upstream sewer system. Easily monitored; No subtraction errors.
- Total I/I as high as 2,860 gpad.
- 10 (3-day) storm events had cumulative I/I volume of 3,290,000 gallons.
- About 50% of sewer basin is comprised of post-1961 concrete pipe.
- The sewer basin is in a relatively flat area with no sensitive areas, therefore problems associated with obtaining permits should be minimized.
- The District has T.V.'d most of area and found a few leaking manholes, but no significant problems in the sewer mainlines. Most I/I is coming from District laterals on Right-of-Way and side-sewers on private property.
- This sewer basin flows into King County's Juanita Pump Station, which is at capacity. Reducing I/I could reduce overflow events in Lake Washington.

# Northshore Utility District
# NUD024



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** PAC005

**Local Agency:** City of Pacific/Algona ☐ **Project** ☐ **Basin #:** PAC005

**Contact Person:** John Walsh **Phone #:** 253-929-1113

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ■ Inflow ■ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 4,320 gpad** | **3.0 (11/13/01 storm)** | **Peak: 37 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Rehabilitation techniques appropriate for concrete sewers. |
| Meets Time Frames for the I/I Program | ✔ | Yes. City will dedicate resources necessary to meet one-year criterion within its control. |
| Geographic Representation | ✔ | Yes. Pilot would also be joint project with the City of Algona. |
| "Do No Harm" + Geologic Conditions OK | ✔ | No steep slopes in project vicinity. |
| System Age | ✔ | 33 years |
| Environmental Benefits | ✔ | No steep slopes in project vicinity. |
| Addresses Private Sewer Issues | | Not known. Would need to perform SSES to determine I&I private property sources. |
| Provides Regional Impact | ✔ | In general, I/I removal in Pacific reduces conveyance capacity requirements all the way to Renton WWTP. |
| Model for Future Projects | ✔ | This project represents a good opportunity to remedy I/I in a basin with older pipe and high groundwater. |

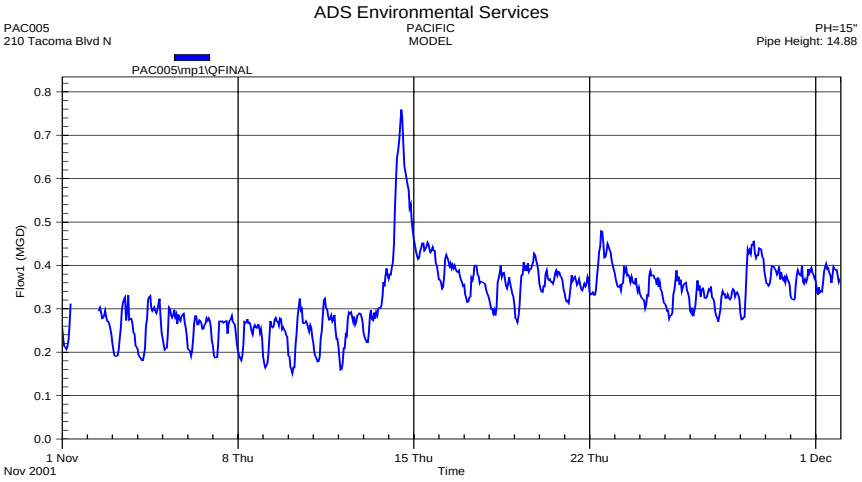
| | | |
|---|---|---|
| Representative of Typical I/I Problems Region-wide | ✔ | Yes |
| Wild Card | | |

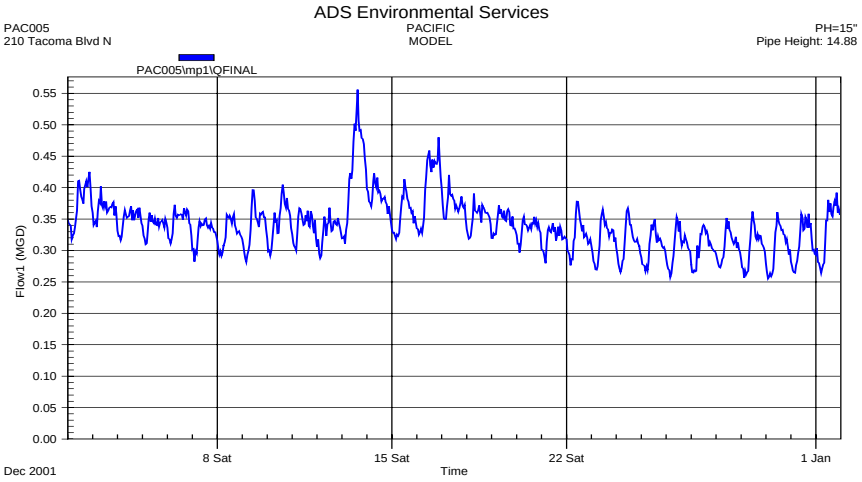
## Project Title: PAC005

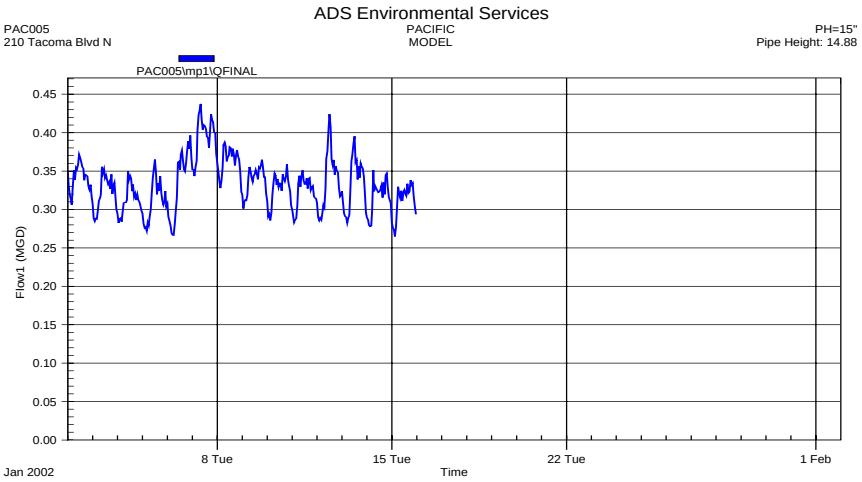
## Key Facts & Information:

- As-built plans available for majority of area
- The city is willing to assist in preliminary investigation including video and smoke testing upon assurance of project award
- According to base line trends, this area is likely to have high level of infiltration from ground water. See flows after Nov. 14 rain fall event
- This project would be shared among joint jurisdictions City of Pacific & City of Algona

# City of Pacific/City of Algona
# PAC005



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** RDM009 – City Center

**Local Agency:** City of Redmond ☐ **Project** ☐ **Basin #:** RDM009

**Contact Person:** Scott Thomasson **Phone #:** 425-556-2829

**Proposed Project Management & Contracting Method:**
☐ **Local Agency** ■ **King County**

**Geographic Area:** ☐ **North** ■ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ■ Infiltration ☐ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 5,250 gpad** | **4.3 (12/15/01 storm)** | **Peak: 30.9 gplfd** |

**Selection Criteria:**

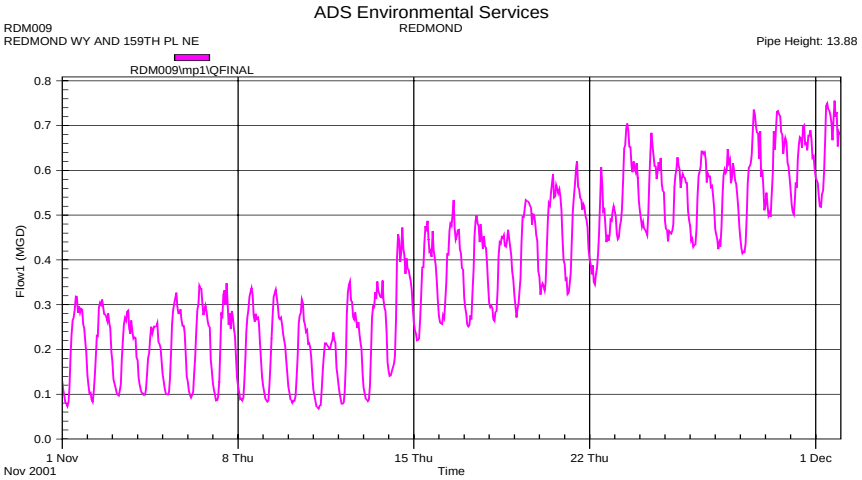
| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | |
| Meets Time Frames for the I/I Program | ✔ | |
| Geographic Representation | ✔ | Eastern region |
| "Do No Harm" + Geologic Conditions OK | ✔ | |
| System Age | ✔ | Pre 1961 System – Core of the system is pre-'61. Outlying areas are more recent. City has near-term plans for upsizing existing mains for future growth. |
| Environmental Benefits | ✔ | Lessen likelihood for sewer overflows |
| Addresses Private Sewer Issues | ✔ | In the event an SSES demonstrates that private side sewers are a significant source of I/I, the Water and Sewer Utility Supports work on private property to remedy. |
| Provides Regional Impact | | |
| Model for Future Projects | ✔ | Excellent candidate for pipe bursting as some of the pipe will need to be upsized for future growth. |

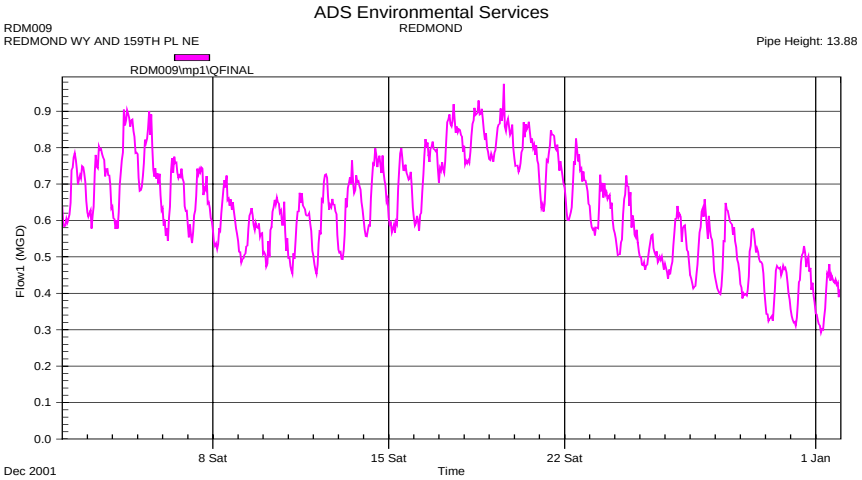
| | | |
|---|---|---|
| Representative of Typical I/I Problems Region-wide | ✔ | Basin currently includes pipe from 8 to 14 inches. Near term, growth driven plans call for upsizing the downstream pipes in the basin. A successful I/I removal project here could demonstrate the cost effectiveness of I/I removal by eliminating the need for some costly upsizing of downstream mains.<br>Basin also is an excellent example of valley floor area w/ high winter water table and resultant high infiltration. Variety of opportunities to address pre-'61 concrete pipe as well as more recent pvc pipe. |
| Wild Card | | |

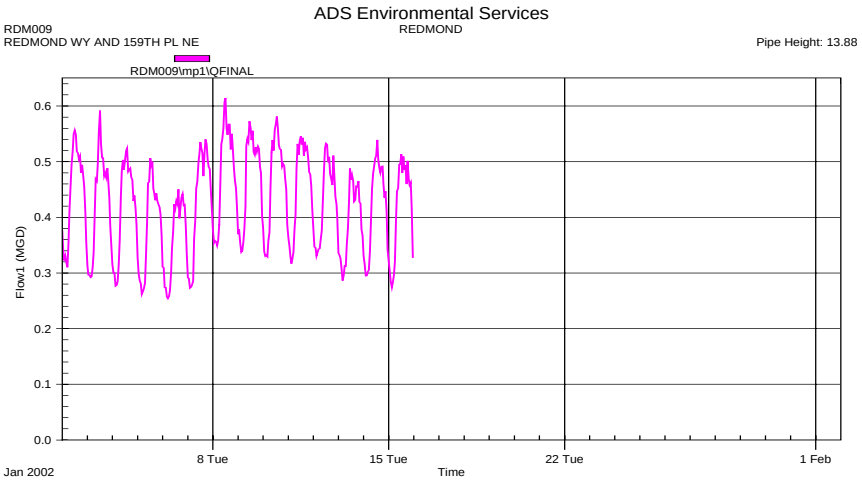
**Project Title:** RDM009

**Key Facts & Information:**

# City of Redmond
# RDM009



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** RNT021

**Local Agency:** City of Renton **Project/Basin #:** RNT021

**Contact Person:** Dave Christensen **Phone #:** 425-235-2500

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ☐ Both ■ Unknown
☐ Public ■ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 4,355 gpad** | **5.2 (12/12/01 storm)** | **Peak: 26.5 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | This project would primarily consist of sidesewer work on private property, due to past work performed by City in this subbasin. |
| Meets Time Frames for the I/I Program | ✔ | City has already performed extensive work on mainline system including TV work, smoke testing, manhole and mainline rehabilitation. The City performed a City-Wide I/I evaluation in 1995 that included this subbasin. In 1996 the City rehabilitated all manholes that were identified to have significant I/I. In 1997 we relined sewer mains that indicated severe leakage as part of previous investigation work. No external permits required. City permits issued by this Department.<br>City staff is currently performing additional TV Taping and manhole evaluation within this subbasin. This work will be performed during low or no use periods and during a rain event to try and identify key portions of the private system to concentrate on. |
| Geographic Representation | ✔ | Located in Renton Highlands in a perched groundwater situation. |

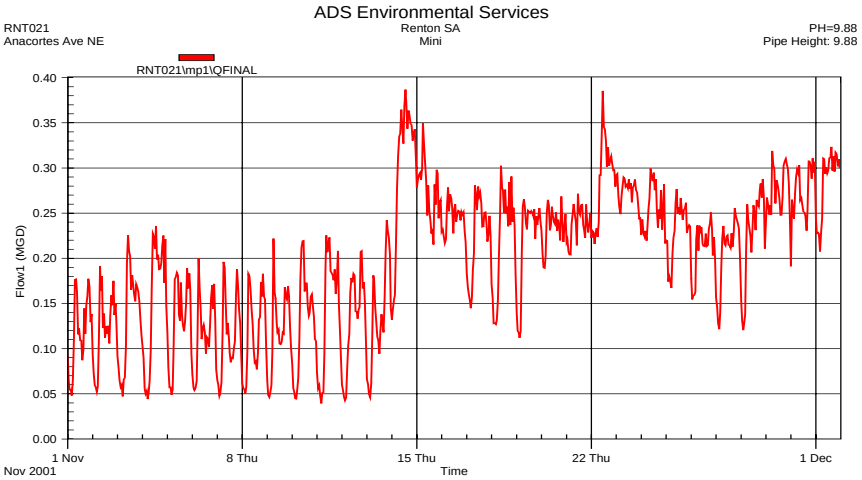
| | | |
|---|---|---|
| "Do No Harm" + Geologic Conditions OK | ✔ | This area is not listed on the City's geologic hazards mapping. |
| System Age | ✔ | 1967-1998; Primarily concrete pipe installed in late 1960's. Small sections of PVC added. Post 1961 System – see attached map. |
| Environmental Benefits | ✔ | This area is located in the City's aquifer recharge area for its water supply. Repairing leaky sidesewers would have the benefit of reducing exfiltration of contaminates within the aquifer. |
| Addresses Private Sewer Issues | ✔ | The City has performed extensive work in the subbasin on the mainline systems, and we feel that it is relatively tight. As such, we propose to concentrate the work on the private sidesewers for further flow reduction. Homeowner owns sidesewer from main to house. |
| Provides Regional Impact | | Not to our knowledge. |
| Model for Future Projects | ✔ | Excellent opportunity to focus on private property issues with sidesewers. |
| Representative of Typical I/I Problems Region-wide | ✔ | The majority of this subbasin was installed in the mid to late 1960's with concrete pipe and concrete sidesewers. The majority of the area is single family residential. |
| Wild Card | ✔ | Again, this location is a ready example to test sidesewer technologies. |

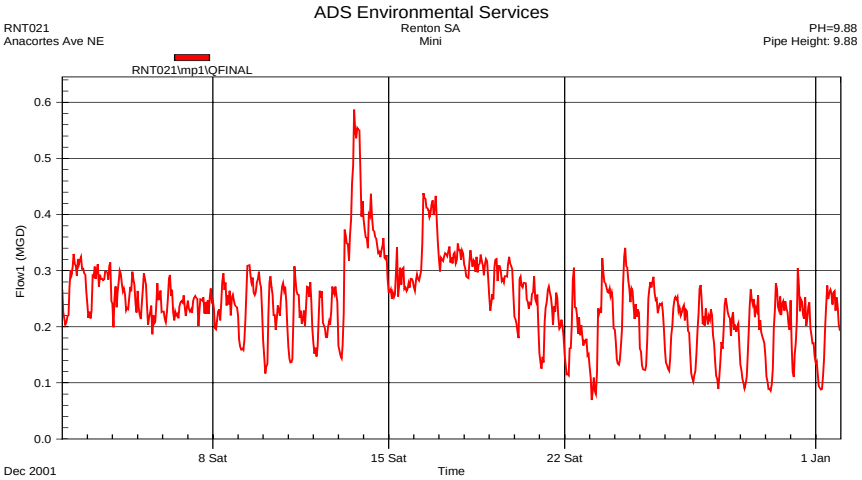
## Project Title: RNT021

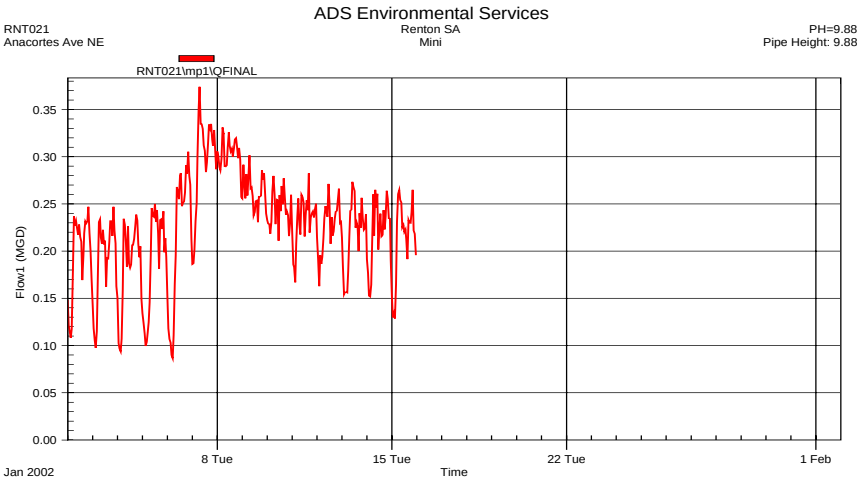
## Key Facts & Information:

Primarily residential neighborhood consisting of 8-inch pipe, mostly concrete.

# City of Renton
# RNT021



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title: RON002 (RWD Sub-Basin 14-10)**

**Local Agency: Ronald Wastewater Dist.** ☐ **Project** ☐ **Basin #: RON002**

**Contact Person: Scott Christensen (CHS)** **Phone #: 425-637-3693**

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 11,279 gpad** | **11.1 (11/28/01 storm)** | **Peak: 81.9 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Replace side sewers by pipebursting, open cut or repair by cured in place lining |
| Meets Time Frames for the I/I Program | ✔ | • Mainline video inspection has already been completed – 1998 through 2000<br>• Permits required: Right-of-Way, Right-of-Entry (ROE) (for work on private property, District has successfully obtained on past similar project) |
| Geographic Representation | ✔ | NW King County, City of Shoreline |
| "Do No Harm" + Geologic Conditions OK | | Excavations are in developed areas and previously disturbed |
| System Age | ✔ | 43 years |
| Environmental Benefits | ✔ | • Reduces sewer overflows (see facts & info)<br>• Returns ground water to Boeing Creek<br>• Minimum impact repairs by pipebursting or cured in place lining as much as feasible |
| Addresses Private Sewer Issues | ✔ | Public & Private. Project involves side sewer replacement from mainline to house connection |

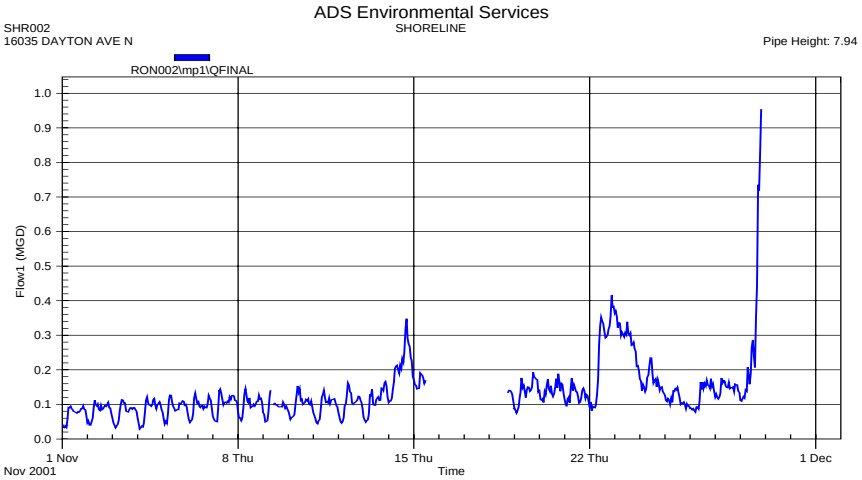
| | | |
|---|---|---|
| Provides Regional Impact | ✔ | Reduces flows to King County facilities (Hidden Lake/Richmond Beach Pump Stations) and Edmonds WWTP via "Flow Transfer" agreement |
| Model for Future Projects | ✔ | Determines the benefit of replacing side sewers in a basin |
| Representative of Typical I/I Problems Region-wide | ✔ | Side sewers are typically a significant source of I/I |
| Wild Card | ✔ | Sanitary Sewer Evaluation Survey (Flow Monitoring, Smoke Testing, Mainline TV Inspection) work already completed; District currently working on similar project. |

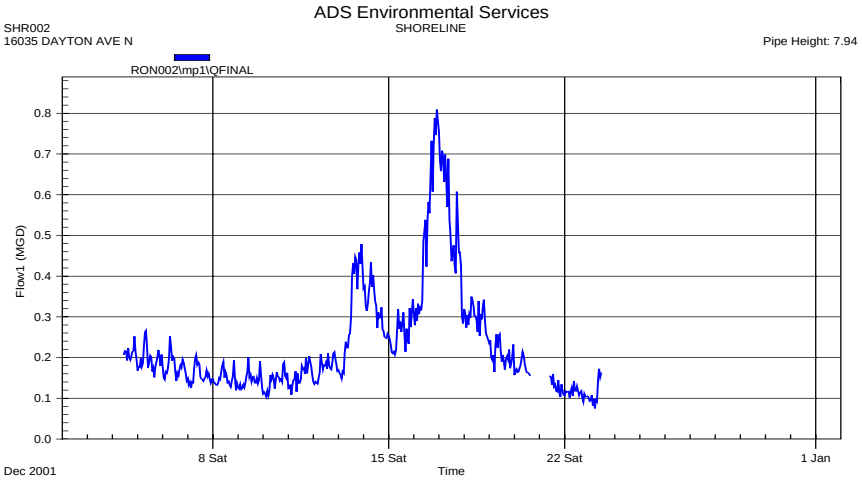
## Project Title: RON002

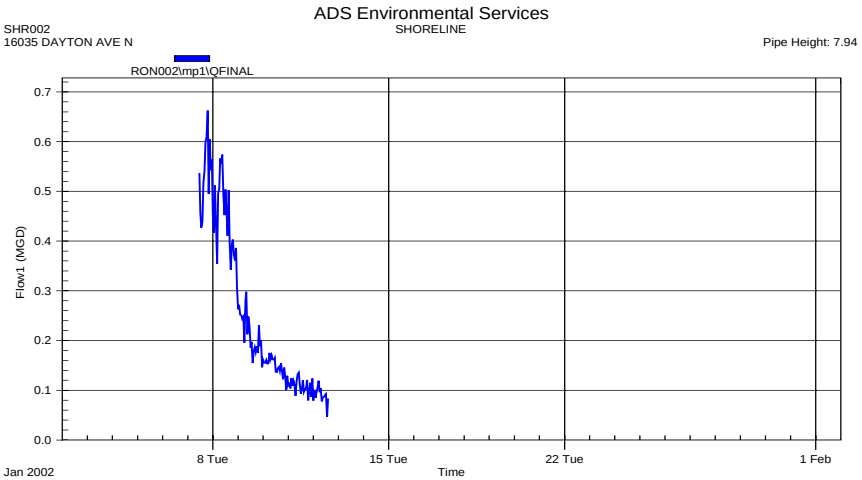
## Key Facts & Information:

- Project cost approx. $1.8m, District will fund approx. $0.9m +/-
- Objective: To assess impact of replacement of side sewers on private property, TV and repair those in Right of Way as required, plus repair the identified mainline faults. We believe there are faults in side sewers that cannot be easily identified by smoke testing and Tving.
- Smoke testing and mainline TV inspection already complete
- Approximately 43 year old concrete pipe system
- Most Upstream basin
- Only 8 mainline faults evident from TV inspection (Basin Area = 85+ acres, 322 Homes) which indicates I/I is coming from side sewers
- Tributary to Hidden Lake and Richmond Beach Pump Stations which are in the pre-design stage of upsizing. Project may reduce size of King Co. Hidden Lake Project if successful, basin suffers periodic overflows
- Project can be ready for construction in the summer of 2002 and completed within one year
- Consistent indication of I/I over all rain storms and verification of King Co. data by District flow monitoring in years 1999 through 2001
- Area tributary to Boeing Creek, District has a Salmon/Stream monitoring program here, so it can document summer flow
- This project encompasses the entire basin

# Ronald Wastewater District
# RON002



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title:** RON032 (former SPU/LCSD)

**Local Agency:** Ronald Wastewater Dist. ☐ **Project** ☐ **Basin #:** RON032

**Contact Person:** Scott Christensen (CHS) **Phone #:** 425-637-3693

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ■ **North** ☐ **East** ☐ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ☐ Private ■ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 7,303 gpad** | **17.5 (12/15/01 storm)** | **Peak: 48.0 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | TBD, but presumed to be mostly side sewer replacement by pipebursting or cured in place lining |
| Meets Time Frames for the I/I Program | ✔ | District prepared to smoke test and TV summer of 2002 and prepare project for winter 2003 |
| Geographic Representation | ✔ | NW King County, City of Shoreline |
| "Do No Harm" + Geologic Conditions OK | | Excavations are in developed and previously disturbed areas |
| System Age | ✔ | 43 yrs. |
| Environmental Benefits | ✔ | Minimum impact by pipebursting & cured in place as much as feasible |
| Addresses Private Sewer Issues | ✔ | Public & Private. Project will involve side sewer replacement from mainline to house connection |
| Provides Regional Impact | ✔ | Reduces flows to King County facilities (via Seattle sewers) |
| Model for Future Projects | ✔ | Fast track SSES and TV of side sewers |
| Representative of Typical I/I Problems Region-wide | ✔ | The significant I/I in this basin is presumed to be mostly from side sewers |

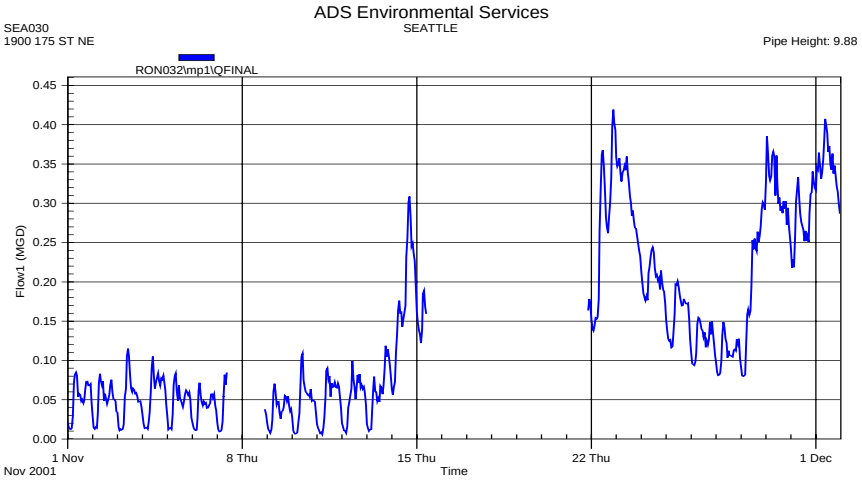
| | | |
|---|---|---|
| Wild Card | ✔ | District currently working on similar side sewer and mainline repair project |

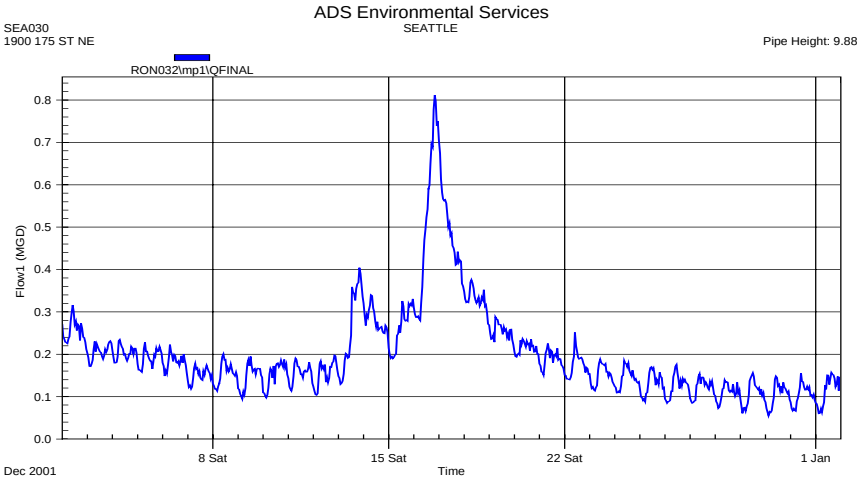
## Project Title: RON032

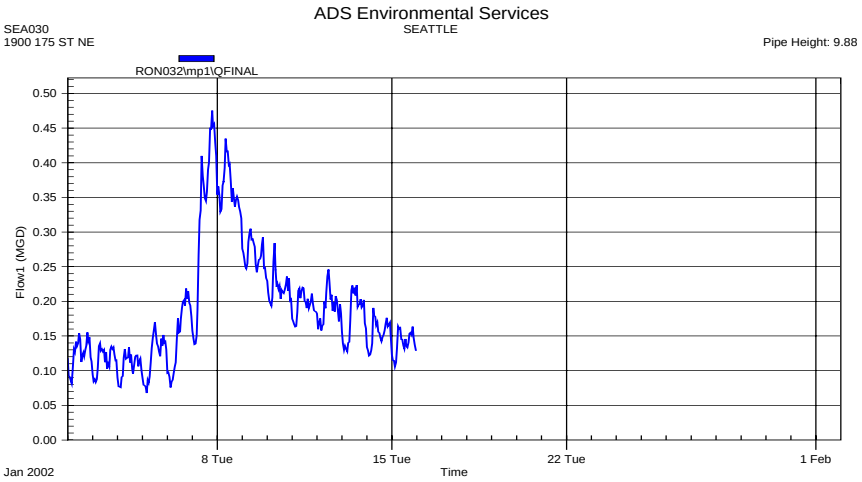
## Key Facts & Information:

- District is willing to participate financially above King County's level of participation
- Objective: To assess impact of repairing identified faults in side sewers and mainline
- District committed to smoke testing and TV work summer of 2002 and preparation of construction contract for winter/spring 2003
- Approximately 43 year old concrete pipe
- Most Upstream basin
- Basin Area = 100+ acres, 340 Homes
- District has current project in construction where contractor is Tving side sewers and doing replacement, also making mainline repairs
- System acquired from Seattle Public Utilities (SPU) 10/1/01
- This project encompasses the entire basin

# Ronald Wastewater District
# RON032



# I/I Workshop #8 – Pilot Project/Basin Selection
# Worksheet for Proposed Pilot Project or Basin

**Pilot Basin or Project Title: Subbasin 13 Rehabilitation**

**Local Agency: Val Vue Sewer District** **Project/Basin #: VAL016**

**Contact Person: Dana Dick** **Phone #: 206-242-3236**

**Proposed Project Management & Contracting Method:**
■ **Local Agency** ☐ **King County**

**Geographic Area:** ☐ **North** ☐ **East** ■ **South**

**I/I Source Info (if known):** ☐ Inflow ☐ Infiltration ■ Both ☐ Unknown
☐ Public ■ Private ☐ Both ☐ Unknown

**Flow Data (where known):**

| Gallons per Acre per Day | Ratio of Peak Flow to Average Flow | Gallons per Day per Lineal Foot Pipe |
|---|---|---|
| **Peak: 3,726 gpad** | **4.6 (12/12/01 storm)** | **Peak: 26.5 gplfd** |

**Selection Criteria:**

| Item | Check | Comments |
|---|---|---|
| Uses a Variety of Proven Technologies & Rehabilitation Techniques | ✔ | Pipe bursting and slip-lining of side sewers and stubs only; Trenchless Technology |
| Meets Time Frames for the I/I Program | ✔ | Right-of-Way Use Permit, Local Agency to acquire private property right-of-entry form. |
| Geographic Representation | ✔ | South 3 |
| "Do No Harm" + Geologic Conditions OK | ✔ | No geographic harm. All work will be done in right-of-ways or residential yards |
| System Age | ✔ | Post 1961 System – 37 yrs. |
| Environmental Benefits | ✔ | Increase capacity and reduce overflows, ESA benefits, and minimize public impacts by trenchless rehabilitation, when appropriate |
| Addresses Private Sewer Issues | ✔ | Project is for private side sewers only and District owned stubs only – video inspection indicated mainline is sound |
| Provides Regional Impact | ✔ | Increase capacity in regional system by reducing flows to go to King County-Metro |
| Model for Future Projects | ✔ | Results are expected to be significant and will be closely monitored and provided for modeling |

| | | |
|---|---|---|
| Representative of Typical I/I Problems Region-wide | ✔ | Video inspection indicates problems are primarily in the laterals, a typical problem for many systems. |
| Wild Card | ✔ | Visual observations indicate manhole surcharging and overflows in storm events. Basement flooding also has resulted from major storm events.<br>All, or part, of this basin can become a pilot project. |

## Project Title: Subbasin 13 Rehabilitation

## Key Facts & Information:

**I/I Confirmed:**

- Upstream basin, easily monitored
- Total I/I as high as 3,726 gpad.
- 10 storm cumulative volume = 7,001,616 gallons
- Flow monitoring by ADS indicates a peaking factor of 4 to 5.
- Val Vue's flow monitoring confirms this peaking factor.

**Video Inspection Complete, Source of I/I Confirmed:**

- 90% of the mainline has already been video inspected to confirm its condition.
- Mainline in good condition, Laterals and side sewers are source of I/I.

**Scalable Project Size:**

- 20,000 to 30,000 linear feet of laterals.
- Entire basin, or a part of it can become a project.

**Val Vue has experience with projects of this kind:**

- In the past eight years Val Vue has completed five projects involving private property rehab of side sewers.
- Another project is currently out to bid.

# Val Vue Sewer District
# VAL016